30681

LG

LHC-6230P/S/W/X/Y
LHC-6231P/W/Y

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SECTION 1. GENERAL PART

PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY. NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY. BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

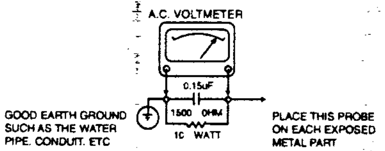
WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

SAFETY CHECKS

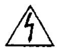
AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRCTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

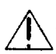
SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS. SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD). AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUNING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS. ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN A.C. VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD. 150.V A.C TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME. MEASURE THE A.C. VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMP A.C ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.



SUBJECT: GRAPHIC SYMBOLS


THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED DANGEROUS VOLTAGE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.


THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SUBJECT : X-RADIATION

1. BE SURE PROCEDURES AND INSTRUCTIONS TO ALL SERVICE PERSONNEL COVER THE SUBJECT OF X-RADIATION. THE ONLY POTENTIAL SOURCE OF X-RAYS IN CURRENT T.V. RECEIVERS IS THE PICTURE TUBE. HOWEVER, THIS TUBE DOES NOT EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATION AT HIGHER VOLTAGES MAY CAUSE A FAILURE OF THE PICTURE TUBE OR HIGH VOLTAGE SUPPLY AND. UNDER CERTAIN CIRCUMSTANCES. MAY PRODUCE RADIATION IN EXCESS OF DESIRABLE LEVELS.
2. ONLY FACTORY SPECIFIED C.R.T. ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS X-RAY SHIELD IN COLOR SETS. ALWAYS RE-INSTALL THEM.
3. IT IS ESSNTIAL THAT SERVICE PERSONNEL HAVE AVAILABLE AN ACCURATE AND RELIABLE HIGH VOLTAGE METER. THE CALIBRA TION OF THE METER SHOULD BE CHECKED PERIODICALLY AGAINST A REFERENCE STANDARD, SUCH AS THE ONE AVAILABLE AT YOUR DISTRIBUTOR.
4. WHEN THE HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EVERY TIME A COLOR CHASSIS IS SERVICED. THE BRIGHTNESS SHOULD BE RUN UP AND DOWN WHILE MONITORING THE HIGH VOLTAGE WITH A METER TO BE CERTAIN THAT THE HIGH VOLTAGE DOES NOT EXCEED THE SPECIFIED VALUE AND THAT IT IS REGULATING CORRECTLY. WE SUGGEST THAT YOU AND YOUR SERVICE ORGANIZATION REVIEW TEST PROCEDURES SO THAT VOLTAGE REGULATION IS ALWAYS CHECKED AS A STANDARD SERVICING PROCEDURE. AND THAT THE HIGH VOLTAGE READING BE RECORDER ON EACH CUSTOMER S INVOICE.
5. WHEN TROUBLESHOOTING AND MAKING TEST MEASUREMENTS IN A PRODUCT WITH A PROBLEM OF EXCESSIVE HIGH VOLTAGE. AVOID BEING UNNECESSARILY CLOSE TO THE PICTURE TUBE AND THE HIGH VOLTAGE SUPPLY. DO NOT OPERATE THE PRODUCT LONGER THAN IS NECESSARY TO LOCATE THE CAUSE OF EXCES SIVE VOLTAGE.
6. REFER TO HV. B+ AND SHUTDOWN ADJUSTMENT PROCEDURES DESCRIBED IN THE APPROPRIATE SCHEMATIC AND DIAGRAMS (WHERE USED).

SUBJECT: IMPLOSION

1. ALL DIRECT VIEWED PICTURE TUBES ARE EQUIPPED WITH AN INTEGRAL IMPLOSION PROTECTION SYSTEM, BUT CARE SHOULD BE TAKEN TO AVOID DAMAGE DURING INSTALLATION. AVOID SCRATCHING THE TUBE. IF SCRATCHED REPLACE IT.
2. USE ONLY RECOMMENDED FACTORY REPLACEMENT TUBES.

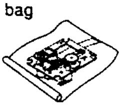
SUBJECT : TIPS ON PROPER INSTALLATION

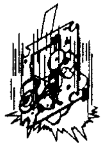
1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS. CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PALCEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT. MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION. UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V. S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS. EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

NOTES REGARDING HANDLING OF THE PICK-UP

1. Notes for transport and storage

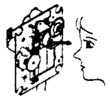
1) The pick-up should always be left in its conductive bag until immediately prior to use.
2) The pick-up should never be subjected to external pressure or impact.





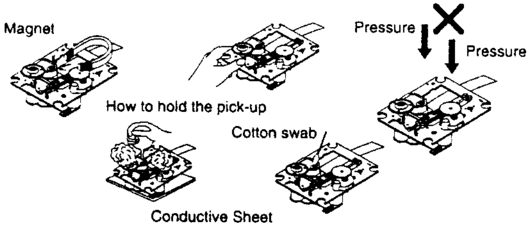
2. Repair notes

1) The pick-up incorporates a strong magnet, and so should never be brought close to magnetic materials.
2) The pick-up should always be handled correctly and carefully, taking care to avoid external pressure and impact. If it is subjected to strong pressure or impact, the result may be an operational malfunction and/or damage to the printed-circuit board.
3) Each and every pick-up is already individually adjusted to a high degree of precision, and for that reason the adjustment point and installation screws should absolutely never be touched.
4) Laser beams may damage the eyes!
   Absolutely never permit laser beams to enter the eyes!
   Also NEVER switch ON the power to the laser output part (lens, etc.) of the pick-up if it is damaged.



NEVER look directly at the laser beam, and don't let contact fingers or other exposed skin.

5) Cleaning the lens surface
   If there is dust on the lens surface, the dust should be cleaned away by using an air bush (such as used for camera lens). The lens is held by a delicate spring. When cleaning the lens surface, therefore, a cotton swab should be used, taking care not to distort this.



6) Never attempt to disassemble the pick-up.
   Spring by excess pressure. If the lens is extremely dirty, apply isopropyl alcohol to the cotton swab. (Do not use any other liquid cleaners, because they will damage the lens.) Take care not to use too much of this alcohol on the swab, and do not allow the alcohol to get inside the pick-up.

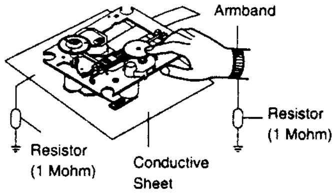
NOTES REGARDING COMPACT DISC PLAYER REPAIRS

1. Preparations

1) Compact disc players incorporate a great many ICs as well as the pick-up (laser diode). These components are sensitive to, and easily affected by, static electricity. If such static electricity is high voltage, components can be damaged, and for that reason components should be handled with care.
2) The pick-up is composed of many optical components and other high-precision components. Care must be taken, therefore, to avoid repair or storage where the temperature of humidity is high, where strong magnetism is present, or where there is excessive dust.

2. Notes for repair

1) Before replacing a component part, first disconnect the power supply lead wire from the unit
2) All equipment, measuring instruments and tools must be grounded.
3) The workbench should be covered with a conductive sheet and grounded.
   When removing the laser pick-up from its conductive bag, do not place the pick-up on the bag. (This is because there is the possibility of damage by static electricity.)
4) To prevent AC leakage, the metal part of the soldering iron should be grounded.
5) Workers should be grounded by an armband (1MΩ)
6) Care should be taken not to permit the laser pick-up to come in contact with clothing, in order to prevent static electricity changes in the clothing to escape from the armband.
7) The laser beam from the pick-up should NEVER be directly facing the eyes or bare skin.



SERVICING PRECAUTIONS

CAUTION : Before servicing the COMBI HOME THEATER SYSTEM covered by this service data and its supplements and addends, read and follow the *SAFETY PRECAUTIONS*. *NOTE* : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.
Remembers Safety First:

General Servicing Precautions

1. Always unplug the COMBI HOME THEATER SYSTEM AC power cord from the AC power source before:
   (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
   (2) Disconnection or reconnecting any internal electrical plug or other electrical connection.
   (3) Connecting a test substitute in parallel with an electrolytic capacitor.
   Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this COMBI HOME THEATER SYSTEM or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
   Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with whitch instruments covered by this service manual might be equipped.
5. Do not apply AC power to this COMBI HOME THEATER SYSTEM and/or any of its electrical assemblies unless all solid-state device heat sinks are cerrectly installed.
6. Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure
Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.
Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices
Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grouned-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified a anti-static can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will by installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

CAUTION. GRAPHIC SYMBOLS

⚡	THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.
⚠	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SPECIFICATIONS

General

Power requirements	AC230V ~ , 50 Hz
Power consumption	130 W
Dimensions (approx.)	430 X 90 X 350 mm (w x h x d)
Mass (approx.)	8 kg (17.6 lbs)
Operating temperature	5ßC to 40ßC (41ßF to 104ßF)
Timer	24-hour display type
Operating humidity	5 % to 90 %

DVD Section

Laser	Semiconductor laser, wavelength 650 nm
Signal system	PAL/NTSC
Frequency response	DVD (PCM 96 kHz): 8 Hz to 44 kHz DVD (PCM 48 kHz): 8 Hz to 20 kHz CD: 8 Hz to 20 kHz
Signal-to-noise ratio	More than 65 dB (ANALOG OUT connectors only)
Harmonic distortion	Less than 1.0%
Dynamic range	More than 60 dB (DVD) More than 60 dB (CD)

Outputs

S-VIDEO OUT	(Y) 1.0 V (p-p), 75 ohms, negative sync, Mini DIN 4-pin x 1 (C) 0.3 V (p-p) 75 ohms

VCR Section

Head system	4 heads helical scan azimuth system
Television system	PAL, secam colour system
Recording format	PAL (B/G), SECAM (L) (LH-C6230S only)
RF OUT	G/K
RF Modulator	UHF 22-68 (Adjustable)
Tape speed	PAL/MESECAM; 23.39 mm/s (SP), 16.69 mm/s (LP) NTSC (Playback only); 35.35 mm/s (SP), 16.67 mm/s (LP), 11.12 mm/s (EP)
Maximum recording time	SP: 4 h (E-240 tape), LP: 8 h (E-240 tape)
Rewind time	About 180 min (E-180 tape)
Input level	VIDEO: 1.0 V(p-p), 75 ohms, unbalanced AUDIO: -6.0 dBm, more than 10 kohms (SCART) -6.0 dBm, more than 47 kohms (RCA)
Output level	VIDEO: 1.0 V(p-p), 75 ohms, unbalanced
Signal-to-noise ratio	VIDEO: More than 43 dB AUDIO: More than 72 dB (Hi-Fi) More than 42 dB (Mono)
Dynamic range	AUDIO: More than 85 dB

Tuner Section

Tuning range	FM: 87.5 - 108.0 MHz AM: 522 - 1611 kHz
Intermediate frequency	FM: 10.7 MHz AM: 450 kHz

Amplifier Section

Stereo mode	20W + 20W (4 ohm at 1 kHz, THD 10%)
Surround mode	Front: 20W + 20W (THD 10%) Centre: 20W Surround: 20W + 20W (4 ohm at 1 kHz, THD 10%) Subwoofer: 40W (8 ohm at 30 Hz, THD 10%)

Speakers

Satellite (LHS-C6230T)

Type	1 Way 1 Speaker
Impedance	4‰
Frequency Response	130 - 20,000 Hz
Sound Pressure Level	83 dB/W (1m)
Rated Input Power	20W
Max Input Power	40W
Net Dimensions (W x H x D)	88 x 100 x 95 mm
Net Weight	0.54 kg

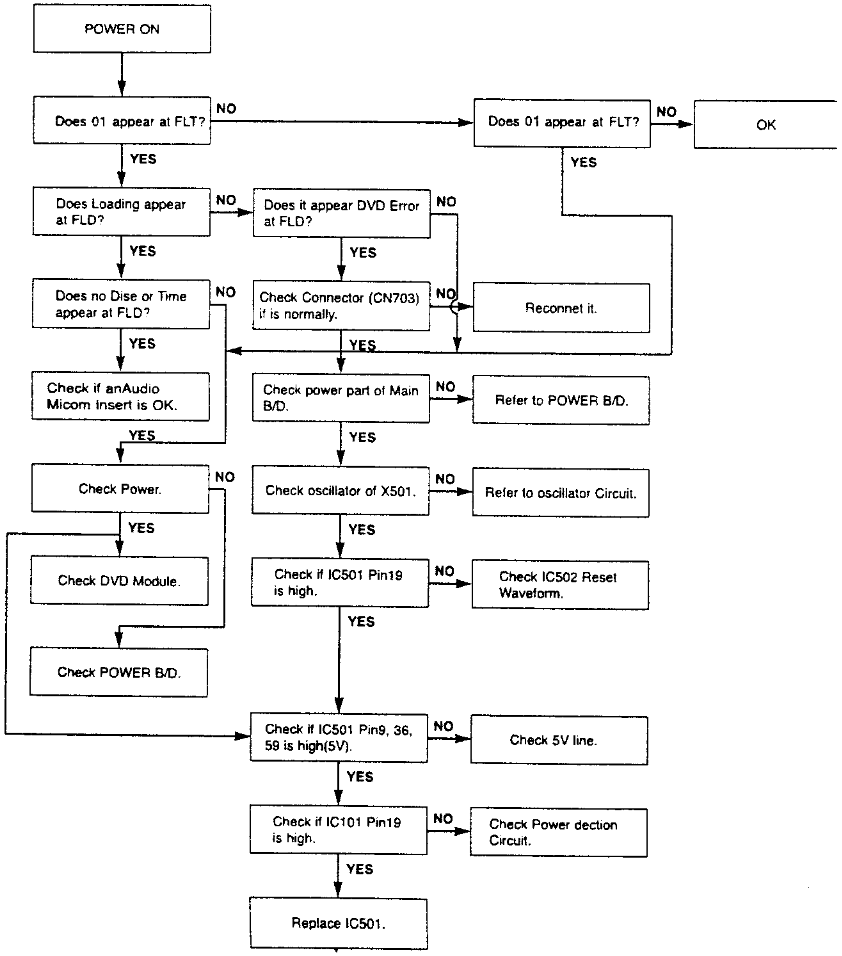
Passive Subwoofer (LHS-C6230W)

Type	1 Way 1 Speaker
Impedance	8‰
Frequency Response	50 - 1,500 Hz
Sound Pressure Level	82 dB/W (1m)
Rated Input Power	40W
Max Input Power	80W
Net Dimensions (W x H x D)	160 x 350 x 325 mm
Net Weight	4.12 kg

SECTION 2. AUDIO PART

AMP PART
ELECTRICAL TROUBLESHOOTING GUIDE

AUDIO μ-COM Circuit


POWER ON
Does 01 appear at FLT?
NO
Does 01 appear at FLT?
NO
OK
YES
YES
Does Loading appear at FLD?
NO
Does it appear DVD Error at FLD?
NO
YES
YES
Does no Dise or Time appear at FLD?
NO
Check Connector (CN703) if is normally.
NO
Reconnet it.
YES
YES
Check if anAudio Micom Insert is OK.
Check power part of Main B/D.
NO
Refer to POWER B/D.
YES
YES
Check Power.
NO
Check oscillator of X501.
NO
Refer to oscillator Circuit.
YES
YES
Check DVD Module.
Check if IC501 Pin19 is high.
NO
Check IC502 Reset Waveform.
YES
Check POWER B/D.
Check if IC501 Pin9, 36, 59 is high(5V).
NO
Check 5V line.
YES
Check if IC101 Pin19 is high.
NO
Check Power dection Circuit.
YES
Replace IC501.

SECTION 3. VCR PART

ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

1) PG Adjustment

- Test Equipment

a) OSCILLOSCOPE
b) NTSC MODEL : NTSC SP TEST TAPE
C) PAL MODEL : PAL SP TEST TAPE

- Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(W373, W374)	R/C TRK JIG KEY	6.5 – 0.5H

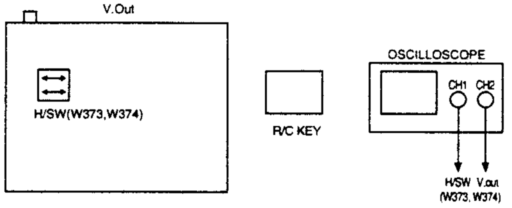
- **Adjustment Procedure**

a) Insert the SP Test Tape and play.
Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the ATR is blink after the SP Test Tape is inserted.
b) Connect the CH1 of the oscilloscope to the H/SW(W373, W374) and CH2 to the Video Out for the VCR.
c) Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW(W373, W374), and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(W373, W374) signal to the starting point of the vertical synchronized signal, to 6.5H – 0.5H (416 s, 1H=64 s).

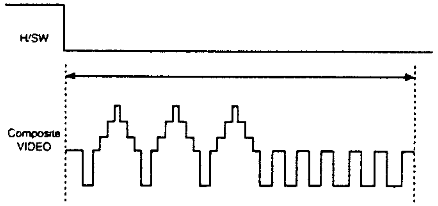
- **PG Adjustment Method**

a-1) Payback the SP standard tape
b-2) Press the 1 key on the Remote controller and the PLAY key on the Front Panel the same time, then it goes in to Tracking initial mode. (Note : PAL Model 1 key on Remote controller)
c-3) Repeat the above step(No.b-2), then it finishes the PG adjusting automatically.
d-4) Stop the playback, then it goes out to PG adjusting mode after mony the PG data.

- **CONNECTION**


V.Out
H/SW(W373,W374)
R/C KEY
OSCILLOSCOPE
CH1
CH2
H/SW
V.out
(W373, W374)

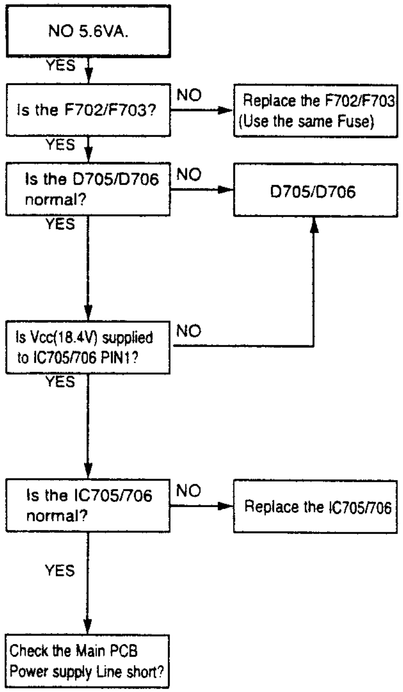
- **WAVEFORM**


H/SW
Composite VIDEO

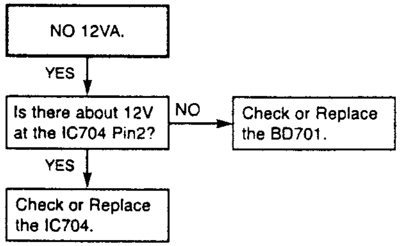
VCR ELECTRICAL TROULBESHOOTING

1. Power B/D

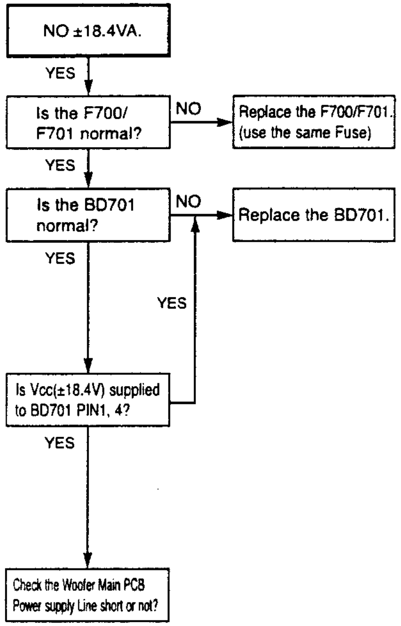
(1) No 5.6VA (SYS/Hi-Fi/TUNER)


NO 5.6VA.
YES
Is the F702/F703?
NO
Replace the F702/F703 (Use the same Fuse)
YES
Is the D705/D706 normal?
NO
D705/D706
YES
Is Vcc(18.4V) supplied to IC705/706 PIN1?
NO
YES
Is the IC705/706 normal?
NO
Replace the IC705/706
YES
Check the Main PCB Power supply Line short?

(2) No 12VA

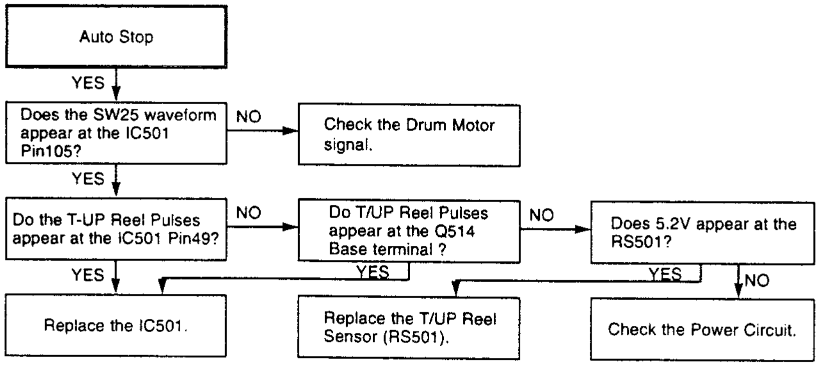

NO 12VA.
YES
Is there about 12V at the IC704 Pin2?
NO
Check or Replace the BD701.
YES
Check or Replace the IC704.

(3) No ±18.4V

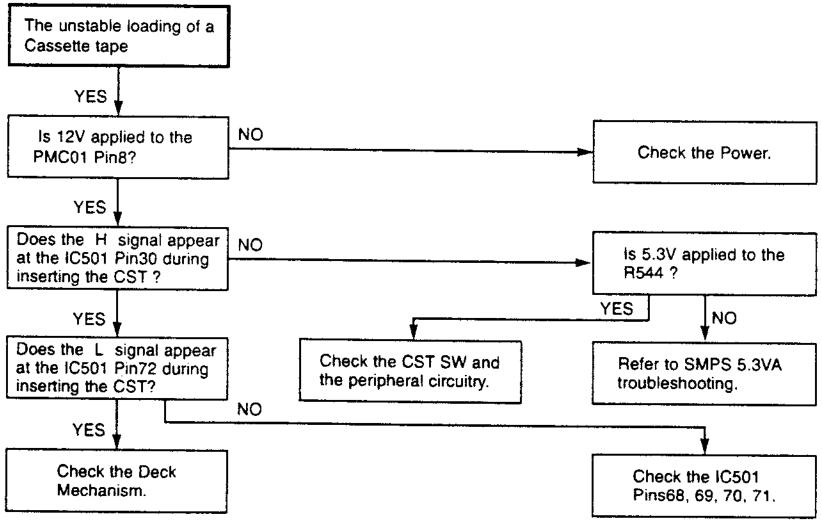

NO ±18.4VA.
YES
Is the F700/ F701 normal?
NO
Replace the F700/F701. (use the same Fuse)
YES
Is the BD701 normal?
NO
Replace the BD701.
YES
YES
Is Vcc(±18.4V) supplied to BD701 PIN1, 4?
YES
Check the Woofer Main PCB Power supply Line short or not?

2. SYSTEM/KEY CIRCUIT

(1) AUTO STOP


Auto Stop
YES
Does the SW25 waveform appear at the IC501 Pin105?
NO
Check the Drum Motor signal.
YES
Do the T-UP Reel Pulses appear at the IC501 Pin49?
NO
Do T/UP Reel Pulses appear at the Q514 Base terminal ?
NO
Does 5.2V appear at the RS501?
YES
YES
YES
NO
Replace the IC501.
Replace the T/UP Reel Sensor (RS501).
Check the Power Circuit.

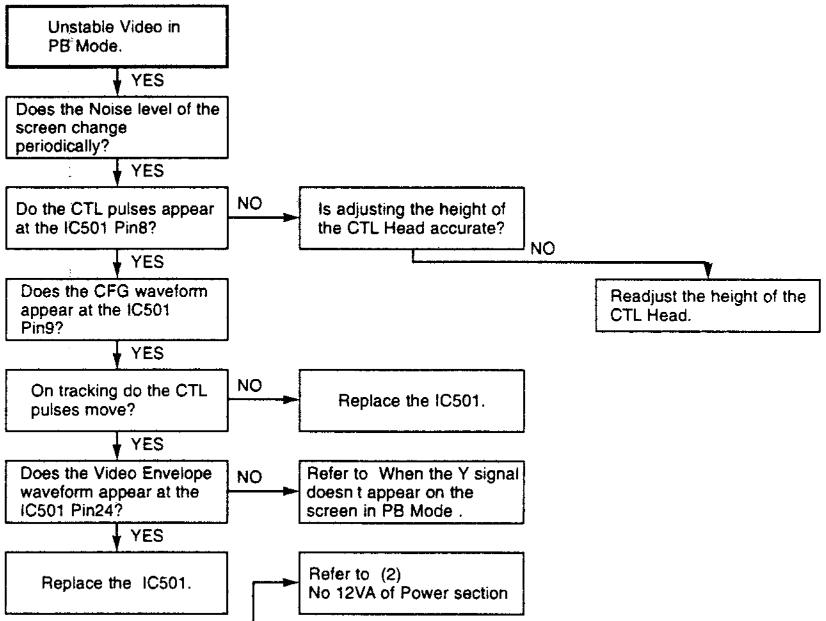
(2) The unstable loading of a Cassette tape


The unstable loading of a Cassette tape
YES
Is 12V applied to the PMC01 Pin8?
NO
Check the Power.
YES
Does the H signal appear at the IC501 Pin30 during inserting the CST ?
NO
Is 5.3V applied to the R544 ?
YES
NO
YES
Does the L signal appear at the IC501 Pin72 during inserting the CST?
Check the CST SW and the peripheral circuitry.
Refer to SMPS 5.3VA troubleshooting.
NO
YES
Check the Deck Mechanism.
Check the IC501 Pins68, 69, 70, 71.

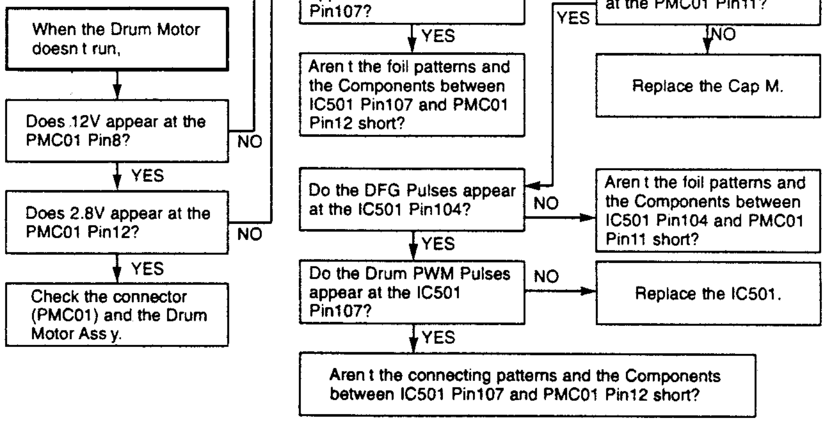
Caution : Auto stop can occur because Grease or Oil is dried up

3. SERVO CIRCUIT

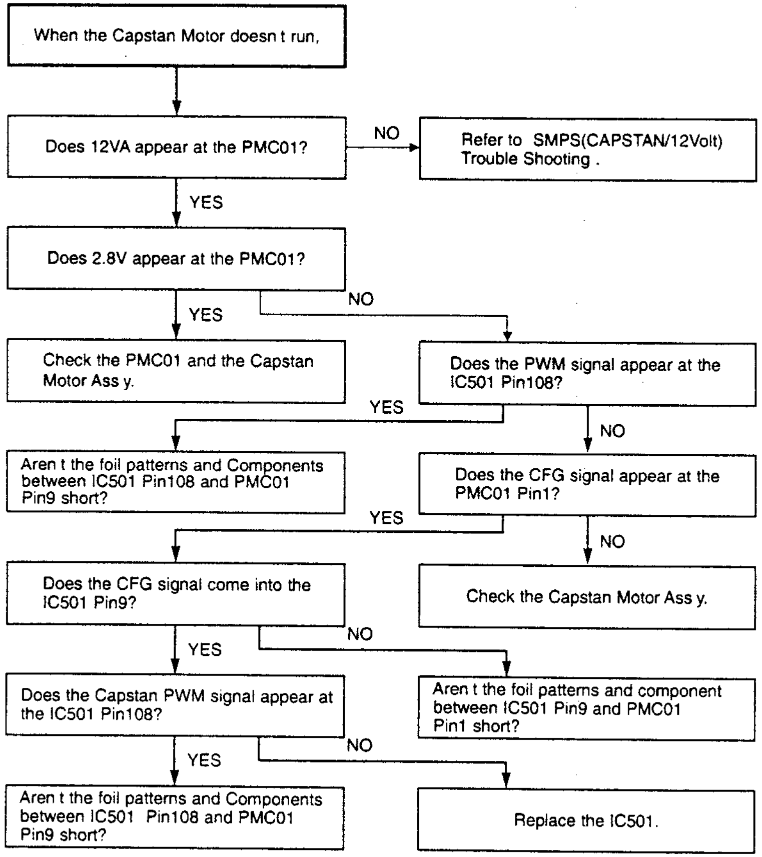
(1) Unstable Video in PB MODE


Unstable Video in PB Mode.
YES
Does the Noise level of the screen change periodically?
YES
Do the CTL pulses appear at the IC501 Pin8?
NO
Is adjusting the height of the CTL Head accurate?
NO
Readjust the height of the CTL Head.
YES
Does the CFG waveform appear at the IC501 Pin9?
YES
On tracking do the CTL pulses move?
NO
Replace the IC501.
YES
Does the Video Envelope waveform appear at the IC501 Pin24?
NO
Refer to When the Y signal doesn t appear on the screen in PB Mode .
YES
Replace the IC501.

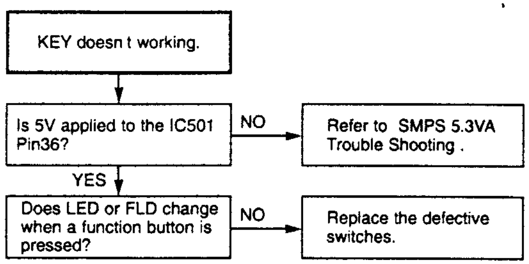
(2) When the Drum Motor doesn t run.


Refer to (2) No 12VA of Power section
When the Drum Motor doesn t run,
Does 12V appear at the PMC01 Pin8?
NO
YES
Does 2.8V appear at the PMC01 Pin12?
NO
YES
Check the connector (PMC01) and the Drum Motor Ass y.
Do the Drum PWM Pulses appear at the IC501 Pin107?
NO
Do the DFG Pulses appear at the PMC01 Pin11?
YES
NO
Replace the Cap M.
YES
Aren t the foil patterns and the Components between IC501 Pin107 and PMC01 Pin12 short?
Do the DFG Pulses appear at the IC501 Pin104?
NO
Aren t the foil patterns and the Components between IC501 Pin104 and PMC01 Pin11 short?
YES
Do the Drum PWM Pulses appear at the IC501 Pin107?
NO
Replace the IC501.
YES
Aren t the connecting patterns and the Components between IC501 Pin107 and PMC01 Pin12 short?

(3) When the Capstan Motor doesn t run,

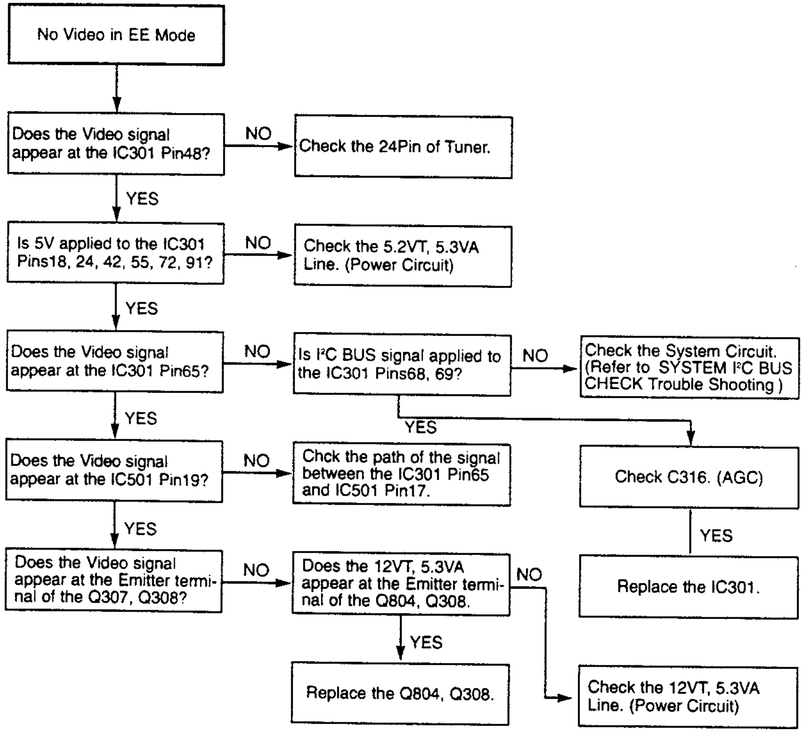

When the Capstan Motor doesn t run,
Does 12VA appear at the PMC01?
NO
Refer to SMPS(CAPSTAN/12Volt) Trouble Shooting .
YES
Does 2.8V appear at the PMC01?
NO
YES
Check the PMC01 and the Capstan Motor Ass y.
Does the PWM signal appear at the IC501 Pin108?
YES
NO
Aren t the foil patterns and Components between IC501 Pin108 and PMC01 Pin9 short?
Does the CFG signal appear at the PMC01 Pin1?
YES
NO
Does the CFG signal come into the IC501 Pin9?
Check the Capstan Motor Ass y.
NO
YES
Does the Capstan PWM signal appear at the IC501 Pin108?
Aren t the foil patterns and component between IC501 Pin9 and PMC01 Pin1 short?
NO
YES
Aren t the foil patterns and Components between IC501 Pin108 and PMC01 Pin9 short?
Replace the IC501.

(4) KEY doesn t working

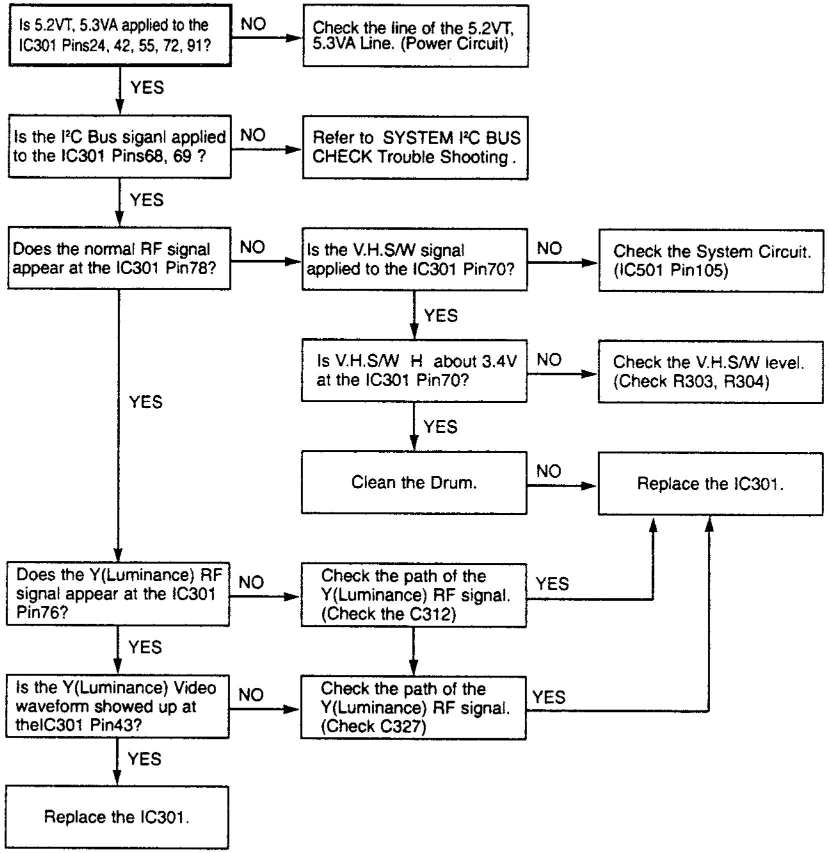

KEY doesn t working.
Is 5V applied to the IC501 Pin36?
NO
Refer to SMPS 5.3VA Trouble Shooting .
YES
Does LED or FLD change when a function button is pressed?
NO
Replace the defective switches.

4. Y/C CIRCUIT

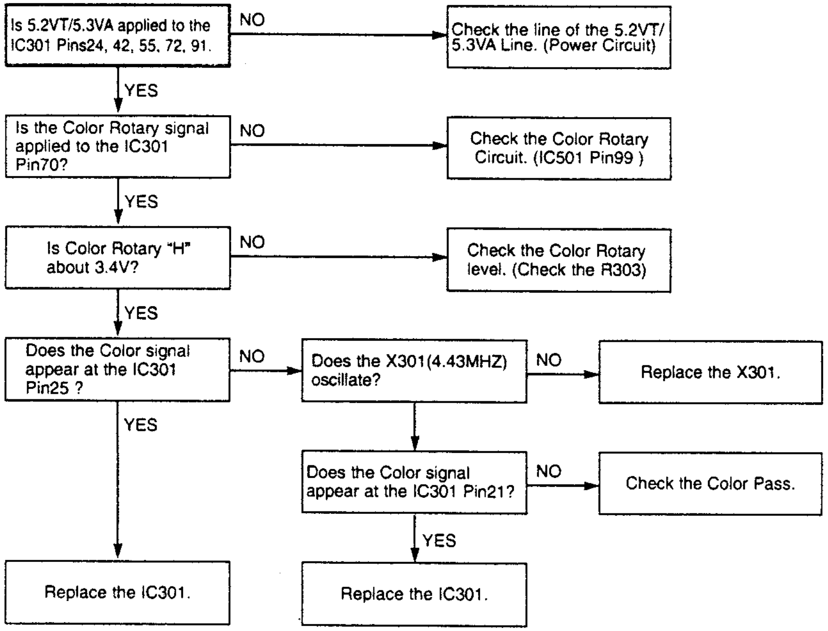
(1) No Video in EE Mode,


No Video in EE Mode
Does the Video signal appear at the IC301 Pin48?
NO
Check the 24Pin of Tuner.
YES
Is 5V applied to the IC301 Pins18, 24, 42, 55, 72, 91?
NO
Check the 5.2VT, 5.3VA Line. (Power Circuit)
YES
Does the Video signal appear at the IC301 Pin65?
NO
Is I²C BUS signal applied to the IC301 Pins68, 69?
NO
Check the System Circuit. (Refer to SYSTEM I²C BUS CHECK Trouble Shooting)
YES
Check C316. (AGC)
YES
Replace the IC301.
YES
Does the Video signal appear at the IC501 Pin19?
NO
Chck the path of the signal between the IC301 Pin65 and IC501 Pin17.
YES
Does the Video signal appear at the Emitter terminal of the Q307, Q308?
NO
Does the 12VT, 5.3VA appear at the Emitter terminal of the Q804, Q308.
YES
Replace the Q804, Q308.
NO
Check the 12VT, 5.3VA Line. (Power Circuit)

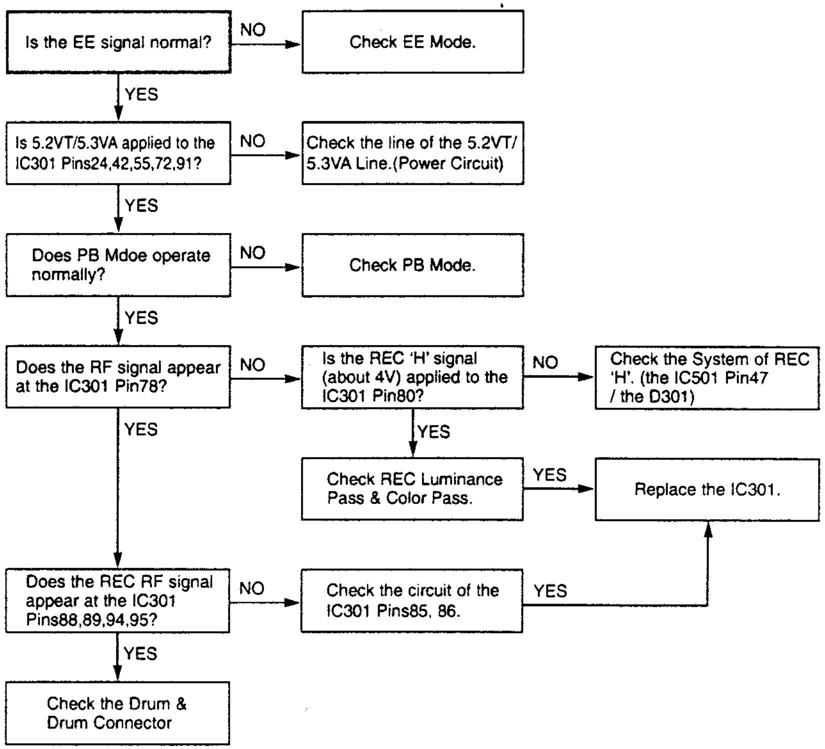
(2) When the Y(Luminance) signal doesn t appear on the screen in PB Mode,


Is 5.2VT, 5.3VA applied to the IC301 Pins24, 42, 55, 72, 91?
NO
Check the line of the 5.2VT, 5.3VA Line. (Power Circuit)
YES
Is the I²C Bus siganl applied to the IC301 Pins68, 69 ?
NO
Refer to SYSTEM I²C BUS CHECK Trouble Shooting .
YES
Does the normal RF signal appear at the IC301 Pin78?
NO
Is the V.H.S/W signal applied to the IC301 Pin70?
NO
Check the System Circuit. (IC501 Pin105)
YES
Is V.H.S/W H about 3.4V at the IC301 Pin70?
NO
Check the V.H.S/W level. (Check R303, R304)
YES
Clean the Drum.
NO
Replace the IC301.
YES
Does the Y(Luminance) RF signal appear at the IC301 Pin76?
NO
Check the path of the Y(Luminance) RF signal. (Check the C312)
YES
YES
Is the Y(Luminance) Video waveform showed up at theIC301 Pin43?
NO
Check the path of the Y(Luminance) RF signal. (Check C327)
YES
YES
Replace the IC301.

(3) When the C(Color) signal doesn t appear on the screen in PB Mode,

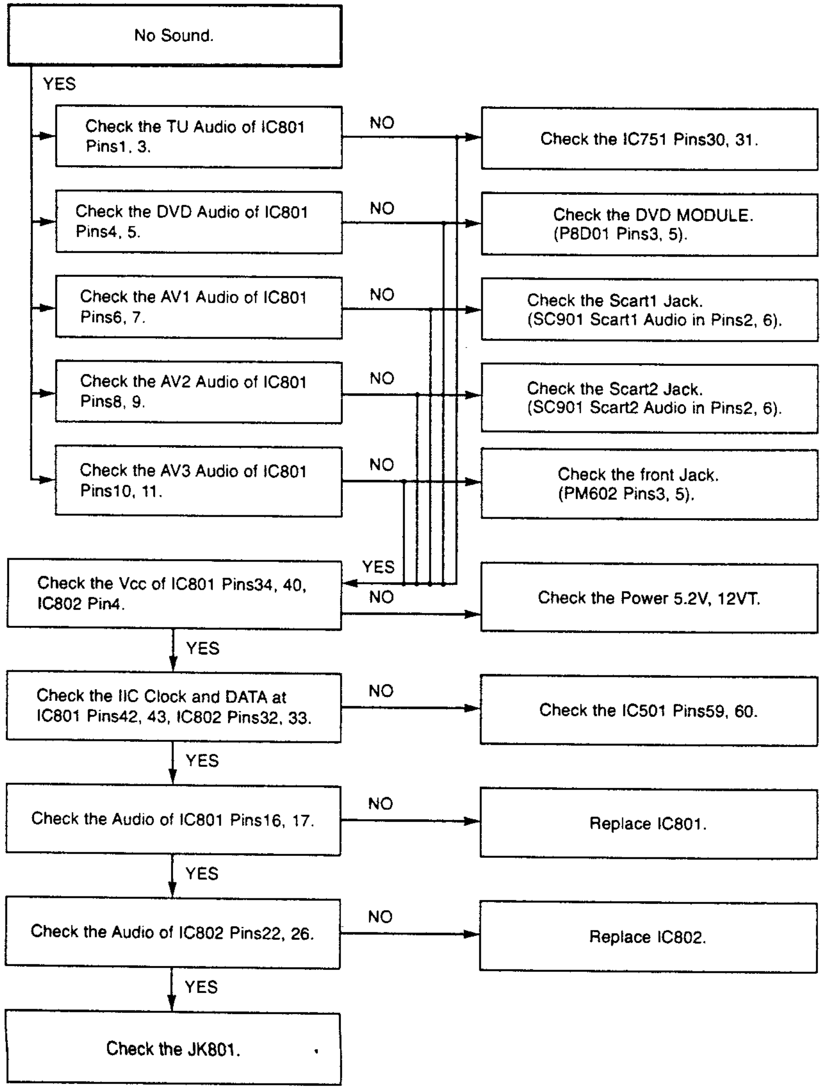

Is 5.2VT/5.3VA applied to the IC301 Pins24, 42, 55, 72, 91.
NO
Check the line of the 5.2VT/ 5.3VA Line. (Power Circuit)
YES
Is the Color Rotary signal applied to the IC301 Pin70?
NO
Check the Color Rotary Circuit. (IC501 Pin99)
YES
Is Color Rotary "H" about 3.4V?
NO
Check the Color Rotary level. (Check the R303)
YES
Does the Color signal appear at the IC301 Pin25 ?
NO
Does the X301(4.43MHZ) oscillate?
NO
Replace the X301.
YES
Does the Color signal appear at the IC301 Pin21?
NO
Check the Color Pass.
YES
Replace the IC301.
Replace the IC301.

(4) When the Video signal doesn t appear on the screen in REC Mode,

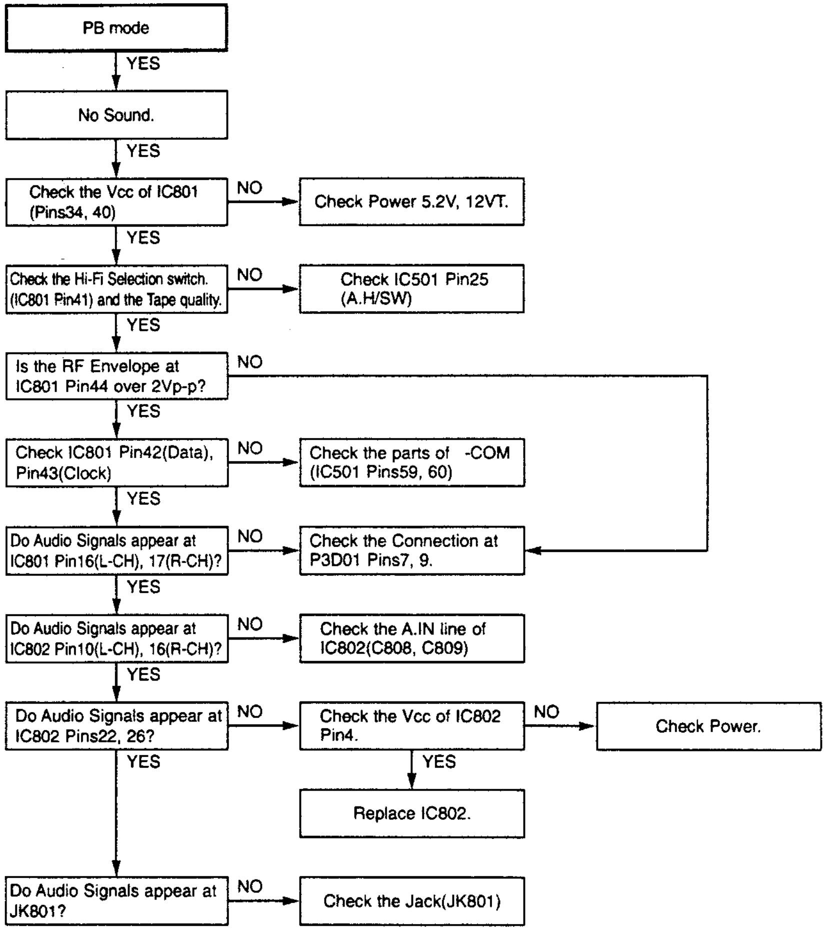

Is the EE signal normal?
NO
Check EE Mode.
YES
Is 5.2VT/5.3VA applied to the IC301 Pins24,42,55,72,91?
NO
Check the line of the 5.2VT/ 5.3VA Line.(Power Circuit)
YES
Does PB Mdoe operate normally?
NO
Check PB Mode.
YES
Does the RF signal appear at the IC301 Pin78?
NO
Is the REC 'H' signal (about 4V) applied to the IC301 Pin80?
NO
Check the System of REC 'H'. (the IC501 Pin47 / the D301)
YES
Check REC Luminance Pass & Color Pass.
YES
Replace the IC301.
YES
Does the REC RF signal appear at the IC301 Pins88,89,94,95?
NO
Check the circuit of the IC301 Pins85, 86.
YES
YES
Check the Drum & Drum Connector

5. Hi-Fi CIRCUIT

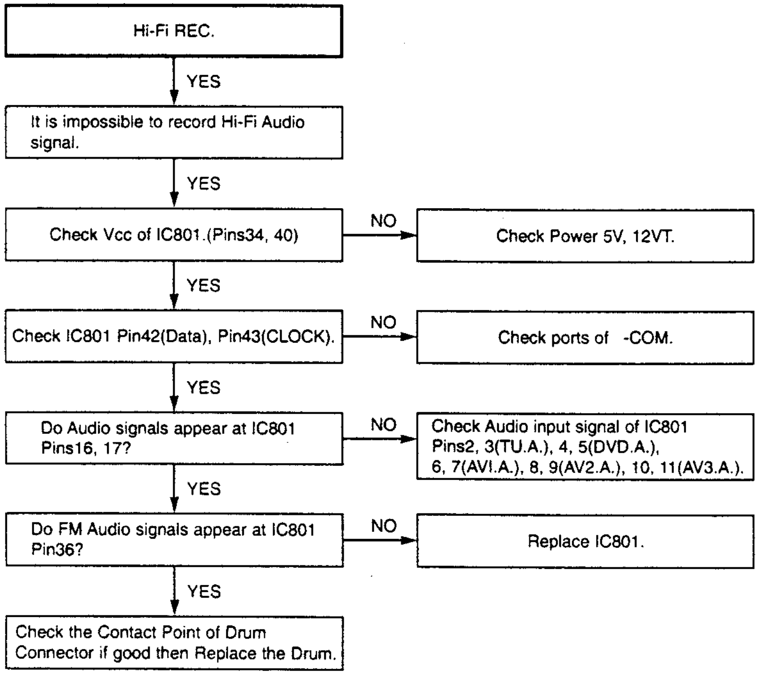
(A) No Sound(EE Mode)


No Sound.
YES
Check the TU Audio of IC801 Pins1, 3.
NO
Check the IC751 Pins30, 31.
Check the DVD Audio of IC801 Pins4, 5.
NO
Check the DVD MODULE. (P8D01 Pins3, 5).
Check the AV1 Audio of IC801 Pins6, 7.
NO
Check the Scart1 Jack. (SC901 Scart1 Audio in Pins2, 6).
Check the AV2 Audio of IC801 Pins8, 9.
NO
Check the Scart2 Jack. (SC901 Scart2 Audio in Pins2, 6).
Check the AV3 Audio of IC801 Pins10, 11.
NO
Check the front Jack. (PM602 Pins3, 5).
YES
Check the Vcc of IC801 Pins34, 40, IC802 Pin4.
NO
Check the Power 5.2V, 12VT.
YES
Check the IIC Clock and DATA at IC801 Pins42, 43, IC802 Pins32, 33.
NO
Check the IC501 Pins59, 60.
YES
Check the Audio of IC801 Pins16, 17.
NO
Replace IC801.
YES
Check the Audio of IC802 Pins22, 26.
NO
Replace IC802.
YES
Check the JK801.

(B) Hi-Fi Playback

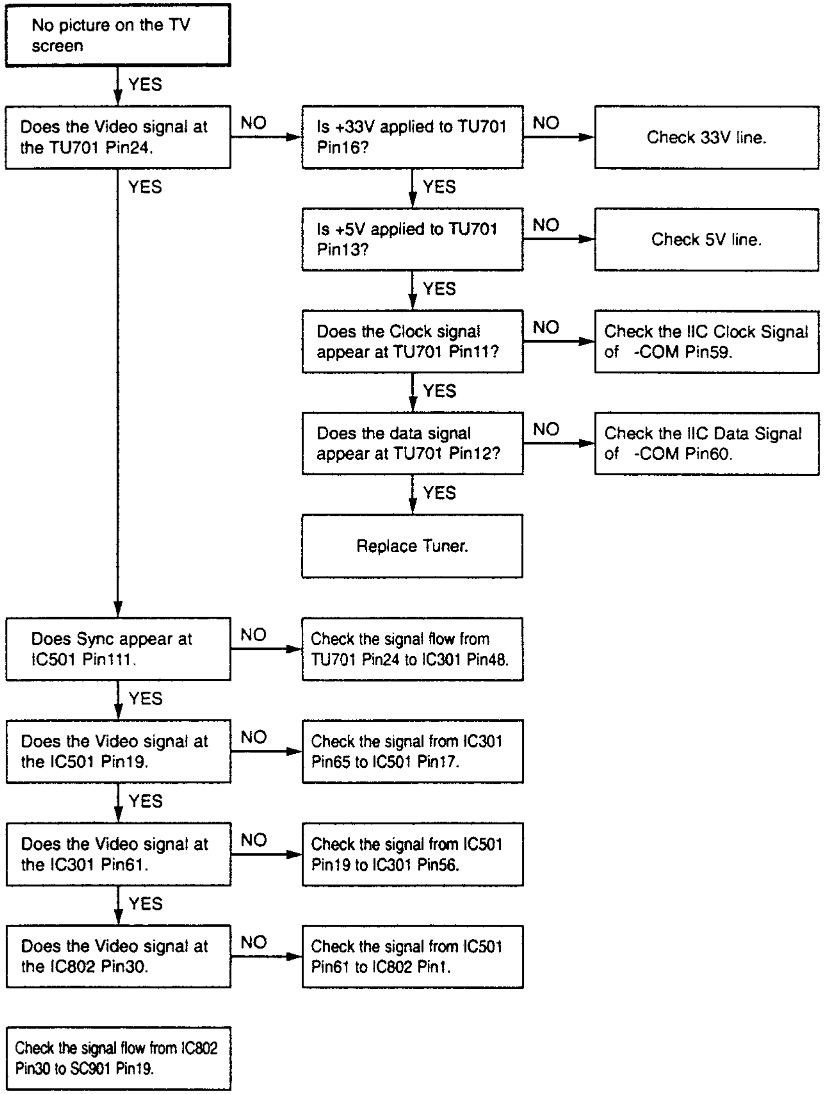

PB mode
YES
No Sound.
YES
Check the Vcc of IC801 (Pins34, 40)
NO
Check Power 5.2V, 12VT.
YES
Check the Hi-Fi Selection switch. (IC801 Pin41) and the Tape quality.
NO
Check IC501 Pin25 (A.H/SW)
YES
Is the RF Envelope at IC801 Pin44 over 2Vp-p?
NO
YES
Check IC801 Pin42(Data), Pin43(Clock)
NO
Check the parts of -COM (IC501 Pins59, 60)
YES
Do Audio Signals appear at IC801 Pin16(L-CH), 17(R-CH)?
NO
Check the Connection at P3D01 Pins7, 9.
YES
Do Audio Signals appear at IC802 Pin10(L-CH), 16(R-CH)?
NO
Check the A.IN line of IC802(C808, C809)
YES
Do Audio Signals appear at IC802 Pins22, 26?
NO
Check the Vcc of IC802 Pin4.
NO
Check Power.
YES
Replace IC802.
YES
Do Audio Signals appear at JK801?
NO
Check the Jack(JK801)

(C)

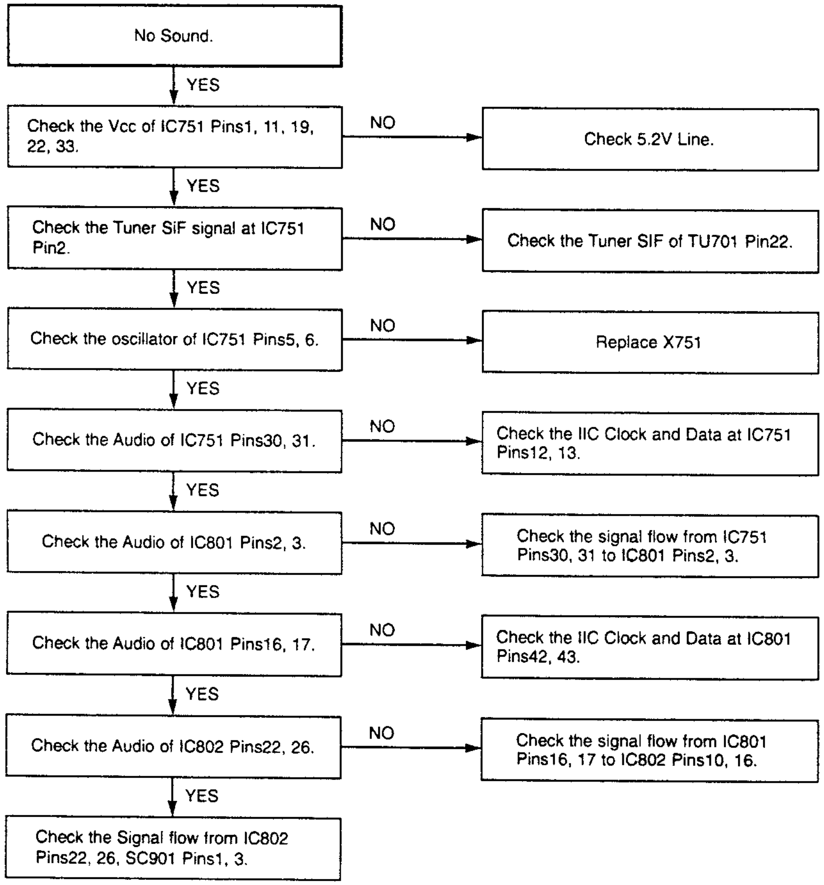

Hi-Fi REC.
YES
It is impossible to record Hi-Fi Audio signal.
YES
Check Vcc of IC801.(Pins34, 40)
NO
Check Power 5V, 12VT.
YES
Check IC801 Pin42(Data), Pin43(CLOCK).
NO
Check ports of -COM.
YES
Do Audio signals appear at IC801 Pins16, 17?
NO
Check Audio input signal of IC801 Pins2, 3(TU.A.), 4, 5(DVD.A.), 6, 7(AVI.A.), 8, 9(AV2.A.), 10, 11(AV3.A.).
YES
Do FM Audio signals appear at IC801 Pin36?
NO
Replace IC801.
YES
Check the Contact Point of Drum Connector if good then Replace the Drum.

6. Tuner/IF CIRCUIT

(A) No Picture on the TV screen

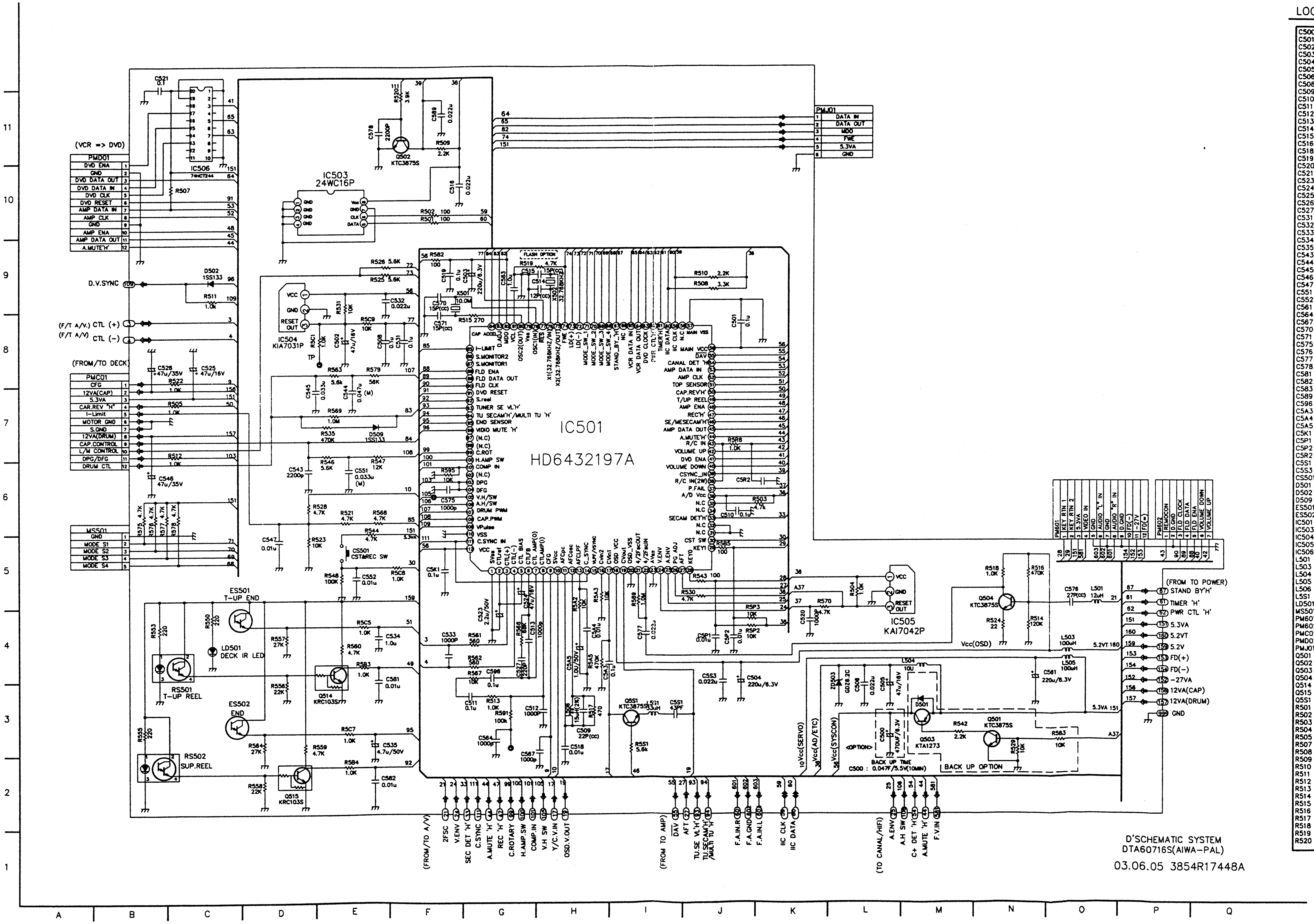

No picture on the TV screen
YES
Does the Video signal at the TU701 Pin24.
NO
Is +33V applied to TU701 Pin16?
NO
Check 33V line.
YES
Is +5V applied to TU701 Pin13?
NO
Check 5V line.
YES
Does the Clock signal appear at TU701 Pin11?
NO
Check the IIC Clock Signal of -COM Pin59.
YES
Does the data signal appear at TU701 Pin12?
NO
Check the IIC Data Signal of -COM Pin60.
YES
Replace Tuner.
YES
Does Sync appear at IC501 Pin111.
NO
Check the signal flow from TU701 Pin24 to IC301 Pin48.
YES
Does the Video signal at the IC501 Pin19.
NO
Check the signal from IC301 Pin65 to IC501 Pin17.
YES
Does the Video signal at the IC301 Pin61.
NO
Check the signal from IC501 Pin19 to IC301 Pin56.
YES
Does the Video signal at the IC802 Pin30.
NO
Check the signal from IC501 Pin61 to IC802 Pin1.
Check the signal flow from IC802 Pin30 to SC901 Pin19.

(B) No Sound


No Sound.
YES
Check the Vcc of IC751 Pins1, 11, 19, 22, 33.
NO
Check 5.2V Line.
YES
Check the Tuner SiF signal at IC751 Pin2.
NO
Check the Tuner SIF of TU701 Pin22.
YES
Check the oscillator of IC751 Pins5, 6.
NO
Replace X751
YES
Check the Audio of IC751 Pins30, 31.
NO
Check the IIC Clock and Data at IC751 Pins12, 13.
YES
Check the Audio of IC801 Pins2, 3.
NO
Check the signal flow from IC751 Pins30, 31 to IC801 Pins2, 3.
YES
Check the Audio of IC801 Pins16, 17.
NO
Check the IIC Clock and Data at IC801 Pins42, 43.
YES
Check the Audio of IC802 Pins22, 26.
NO
Check the signal flow from IC801 Pins16, 17 to IC802 Pins10, 16.
YES
Check the Signal flow from IC802 Pins22, 26, SC901 Pins1, 3.

VCR SHEMATIC DIAGRAMS

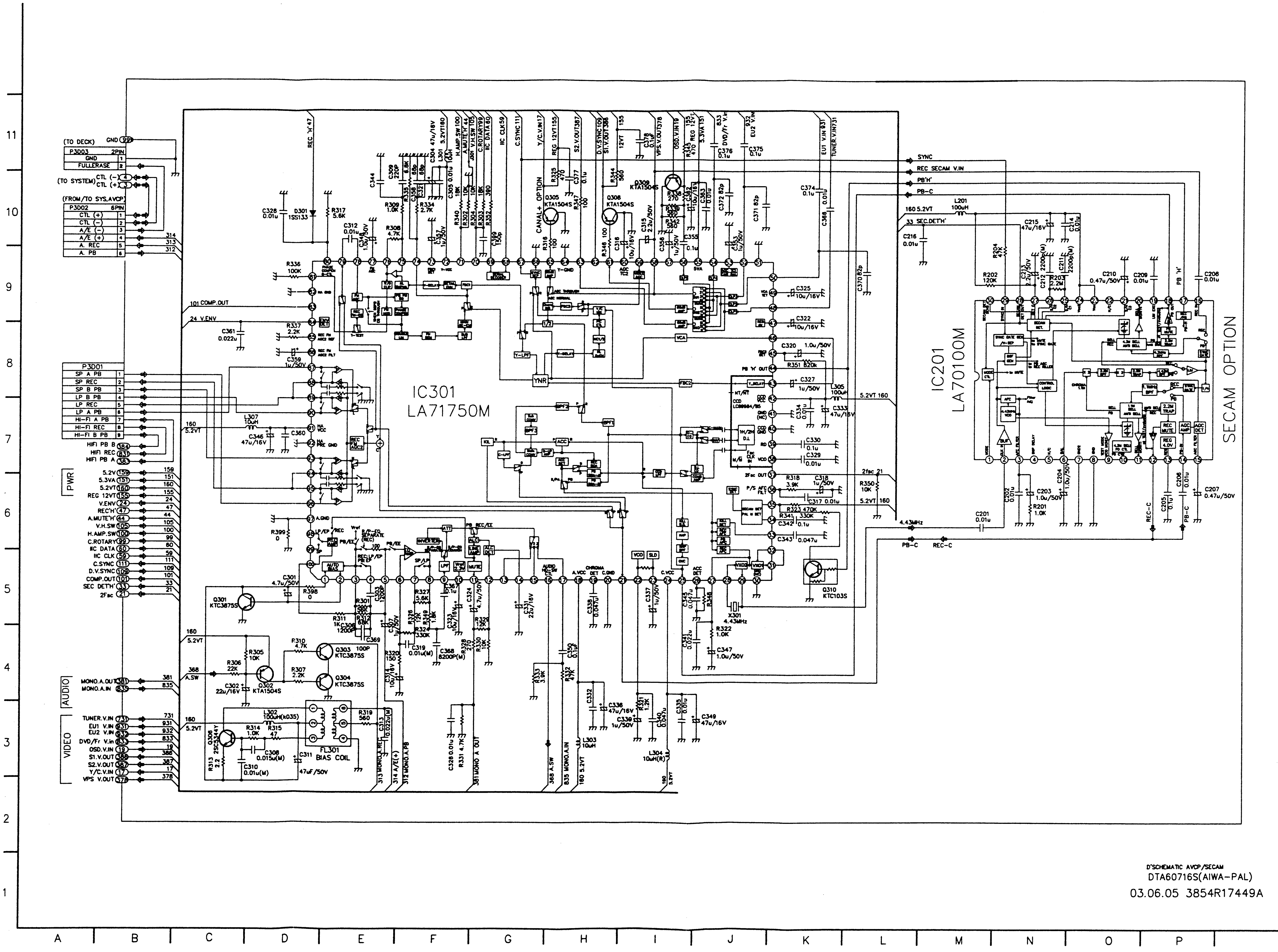
• SYSTEM SCHEMATIC DIAGRAM


IC501
HD6432197A
IC503
24WC16P
IC504
KIA7031P
IC505
KAI7042P
IC506
74HCT244
(VCR => DVD)
PMD01
DVD ENA
GND
DVD DATA OUT
DVD DATA IN
DVD CLK
DVD RESET
AMP DATA IN
AMP CLK
GND
AMP ENA
AMP DATA OUT
A.MUTE'H'
PMJ01
DATA IN
DATA OUT
MDO
FWE
5.3VA
GND
D.V.SYNC
(F/T A/V.) CTL (+)
(F/T A/V) CTL (-)
(FROM/TO DECK)
PMC01
CFG
12VA(CAP)
5.3VA
CAR.REV "H"
I-Limit
MOTOR GND
S.GND
12VA(DRUM)
CAP.CONTROL
L/M CONTROL
DPG/DFG
DRUM CTL
MS501
GND
MODE S1
MODE S2
MODE S3
MODE S4
ES501
T-UP END
LD501
DECK IR LED
RS501
T-UP REEL
ES502
END
RS502
SUP.REEL
Q502
KTC3875S
Q504
KTC3875S
Q501
KTC3875S
Q503
KTA1273
Q514
KRC103S
Q515
KRC103S
Q5S1
KTC3875S
(FROM TO POWER)
STAND BY'H'
TIMER 'H'
PWR CTL 'H'
5.3VA
5.2VT
5.2V
FD(+)
FD(-)
-27VA
12VA(CAP)
12VA(DRUM)
GND
BACK UP OPTION
BACK UP TIME
C500 : 0.047F/5.5V(10MIN)
<OPTION>
(FROM/TO A/V)
2FSC
V.ENV
SEC DET 'H'
C.SYNC
A.MUTE 'H'
REC 'H'
C.ROTARY
H.AMP.SW
COMP.IN
V.H SW
Y/C.V.IN
OSD.V.OUT
(FROM TO AMP)
DAV
AFT
TU SE VL'H'
TU SECAM'H'/MULTI TU 'H'
F.A.IN.R
F.A.GND
F.A.IN.L
IIC CLK
IIC DATA
(TO CANAL/HIFI)
A.ENV
A.H SW
C+ DET 'H'
A.MUTE 'H'
F.V.IN
PM601
PM602
Vcc(SERVO)
Vcc(AD/ETC)
Vcc(SYSCON)
Vcc(OSD)
FLASH OPTION
D'SCHEMATIC SYSTEM
DTA60716S(AIWA-PAL)
03.06.05 3854R17448A
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11

LOCATION GUIDE

C500	L3
C501	J8
C502	E8
C503	G9
C504	J4
C505	L3
C506	L3
C508	E8
C509	H3
C510	J6
C511	G3
C512	G3
C513	G4
C514	G9
C515	G9
C516	F10
C518	H3
C519	F9
C520	K4
C521	B12
C523	G4
C524	G4
C525	C8
C526	B8
C527	G4
C531	F8
C532	F9
C533	F4
C534	E4
C535	E3
C543	D6
C544	E7
C545	D7
C546	B6
C547	D5
C551	E6
C552	E5
C561	N4
C564	G3
C567	G2
C570	F9
C571	F8
C575	F6
C576	O5
C577	I4
C578	E11
C581	E4
C582	E2
C583	G9
C589	F11
C596	G4
C5A3	H4
C5A4	H4
C5A5	H4
C5K1	F5
C5P1	J4
C5P2	J4
C5R2	J6
C5S1	I3
C5S3	J4
CS501	E5
D501	M3
D502	C9
D509	E7
ES501	C5
ES502	C3
IC501	H7
IC503	E10
IC504	D8
IC505	L4
IC506	C10
L501	O5
L503	O4
L504	M4
L505	O4
L506	H3
L5S1	I3
LD501	C4
MS501	A6
PM601	O5
PM602	P5
PMC01	A8
PMD01	A11
PMJ01	K11
Q501	N3
Q502	F11
Q503	M3
Q504	N5
Q514	E3
Q515	D2
Q5S1	I3
R501	F10
R502	F10
R503	J6
R504	L5
R505	C7
R507	C10
R508	J9
R509	F11
R510	J9
R511	C9
R512	C7
R513	G3
R514	N4
R515	F8
R516	N5
R517	H3
R518	N5
R519	G9
R520	F11
R521	E6
R522	C8
R523	D5
R524	N4
R525	E9
R526	E9
R528	D6
R529	N3
R530	I5
R531	E8
R535	E7
R542	M3
R543	J5
R544	E6
R546	E6
R547	E6
R548	E5
R550	C4
R553	B4
R555	B3
R556	D3
R557	D4
R558	D2
R559	D3
R560	E4
R561	G4
R562	G4
R563	E8
R564	D3
R566	E6
R567	G4
R568	G4
R569	E7
R570	K5
R575	B6
R576	B6
R577	B6
R578	C6
R579	E8
R582	F9
R583	O3
R589	I5
R591	G3
R595	F6
R5A2	H4
R5A3	H5
R5A5	H4
R5B3	E4
R5B4	E2
R5B5	J5
R5C1	D8
R5C5	E4
R5C6	F5
R5CZ	E3
R5C9	E8
R5P2	J4
R5P3	J4
R5R8	J7
R5S1	I3
RS501	C3
RS502	C2
X501	F9
X502	H9
ZD503	L3

• A(AUDIO)/V(VIDEO) SCHEMATIC DIAGRAM


(TO DECK)
GND 99
P3D03 2PIN
GND 1
FULLERASE 2
(TO SYSTEM)
CTL (–) 4
CTL (+) 3
(FROM/TO SYS,AVCP)
P3D02 6PIN
CTL (+) 1
CTL (–) 2
A/E (–) 3
A/E (+) 4
A. REC 5
A. PB 6
314
313
312
101 COMP.OUT
24 V.ENV
P3D01
SP A PB 1
SP REC 2
SP B PB 3
LP B PB 4
LP REC 5
LP A PB 6
HI-FI A PB 7
HI-FI REC 8
HI-FI B PB 9
HIFI PB B 384
HIFI REC 831
HIFI PB A 383
PWR
5.2V 159
5.3VA 151
5.2VT 160
REG 12VT 155
V.ENV 24
REC'H' 47
A.MUTE'H' 44
V.H.SW 105
H.AMP.SW 100
C.ROTARY 99
IIC DATA 60
IIC CLK 59
C.SYNC 111
D.V.SYNC 109
COMP.OUT 101
SEC DET'H' 33
2Fsc 21
160 5.2VT
368 A.SW
AUDIO
MONO.A.OUT 381
MONO.A.IN 835
VIDEO
TUNER.V.IN 731
EU1 V.IN 931
EU2 V.IN 932
DVD/Fr V.in 833
OSD.V.IN 19
S1.V.OUT 386
S2.V.OUT 387
Y/C.V.IN 17
VPS V.OUT 378
IC301
LA71750M
IC201
LA70100M
SECAM OPTION
Q301 KTC3875S
Q302 KTA1504S
Q303 KTC3875S
Q304 KTC3875S
Q305 KTA1504S
Q306 2SC5344Y
Q308 KTA1504S
Q309 KTA1504S
Q310 KTC103S
D301 1SS133
L302 100uH(K035)
FL301 BIAS COIL
X301 4.43MHz
L201 100uH
L304 10uH(R)
L303 10uH
L305 100uH
L307 10uH
CANAL+ OPTION
SYNC
REC SECAM V.IN
PB'H'
PB-C
160 5.2VT
33 SEC.DET'H'
REC-C
4.43MHz
YNR
ACC
VCA
AUTO BIAS
CHROMA
C.VCC
DET
A.VCC
C.GND
AUDIO
ACC DET
VCO
A
B
C
D
E
F
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H
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K
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M
N
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D'SCHEMATIC AVCP/SECAM
DTA60716S(AIWA-PAL)
03.06.05 3854R17449A

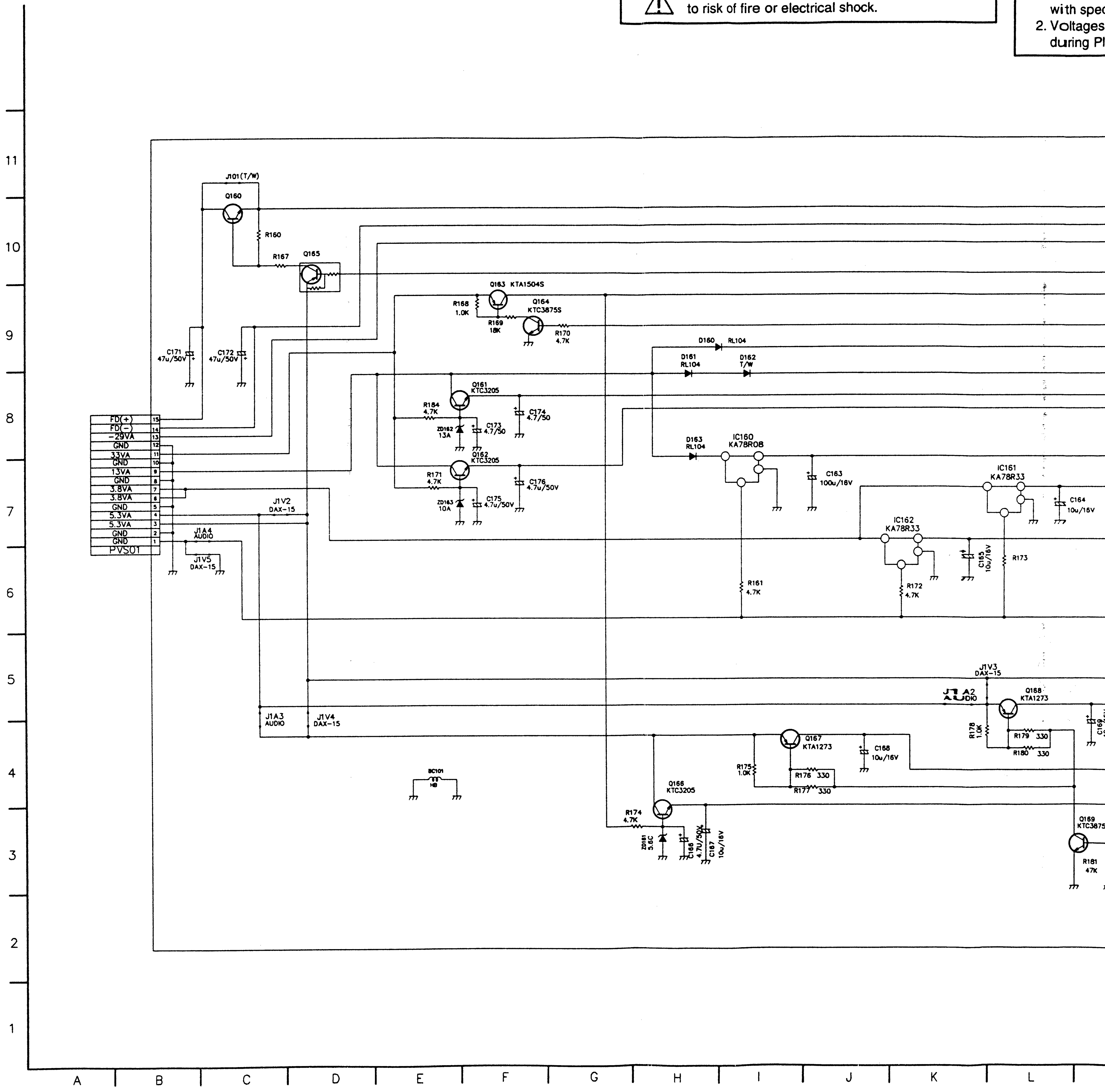
LOCATION GUIDE

C201	M6
C202	N6
C203	N6
C204	N6
C205	P6
C206	P6
C207	P6
C208	P9
C209	O9
C210	O9
C211	N9
C212	N9
C213	N9
C214	O10
C215	N10
C216	L10
C301	D5
C302	C4
C303	E5
C304	F11
C305	F10
C306	E4
C307	E4
C308	D3
C309	E10
C310	C3
C311	D3
C312	E10
C313	E3
C314	E4
C315	I10
C316	H9
C317	K6
C318	K6
C319	F4
C320	K8
C321	F10
C322	K9
C323	F4
C324	G5
C325	K9
C326	F3
C327	K8
C328	D10
C329	K7
C330	K7
C331	G5
C332	H3
C333	K7
C334	K7
C335	I3
C336	H3
C337	I5
C338	H5
C339	H3
C340	I3
C341	I4
C342	K6
C343	K6
C344	E10
C345	I5
C346	D7
C347	J4
C348	E9
C349	J3
C350	H4
C353	J9
C355	I10
C356	I9
C357	F10
C358	F10
C359	D8
C360	D7
C361	C8
C362	I10
C363	J10
C366	K10
C367	F5
C368	F4
C369	E4
C370	L9
C371	J10
C372	J10
C374	K10
C375	J11
C376	J11
C377	H10
C378	I11
C399	G10
D301	D10
FL301	E3
IC201	M8
IC301	F8
J301	G11
L201	M10
L301	F11
L302	D3
L303	H3
L304	I3
L305	K8
L307	C7
P3D01	A8
P3D02	A10
P3D03	A11
Q301	C5
Q302	D4
Q303	E4
Q304	E4
Q305	G10
Q306	C3
Q308	H10
Q309	I10
Q310	K5
R201	N6
R202	M9
R203	N9
R204	N9
R301	E5
R302	F10
R303	G10
R304	G10
R305	D4
R306	C4
R307	D4
R308	E10
R309	E10
R310	D4
R311	E5
R312	E5
R313	C3
R314	D3
R315	D3
R316	H9
R317	E10
R318	K6
R319	E3
R320	E4
R321	I3
R322	J4
R323	K6
R324	F4
R325	H10
R326	F5
R327	F5
R328	F4
R329	G5
R330	G4
R331	F3
R332	H4
R333	G4
R334	F10
R335	F10
R336	D9
R337	D8
R338	I10
R339	I10
R340	F10
R341	K6
R342	I10
R344	H10
R345	I11
R346	H9
R347	H10
R348	J5
R349	F5
R350	L6
R351	K8
R352	G10
R398	D5
R399	D6
X301	J5

• POWER SCHEMATIC DIAGRAM

NOTE: Warning
⚠ Parts that are shaded are critical With respect to risk of fire or electrical shock.

NOTE:
1. Shaded(
with spec
2. Voltages
during P



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A
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H
I
J
K
L
J101(T/W)
Q160
R160
R167
Q165
Q163 KTA1504S
R168 1.0K
R169 18K
Q164 KTC3875S
R170 4.7K
C171 47u/50V
C172 47u/50V
D160 RL104
D161 RL104
D162 T/W
Q161 KTC3205
R184 4.7K
ZD162 13A
C173 4.7/50
C174 4.7/50
Q162 KTC3205
R171 4.7K
ZD163 10A
C175 4.7u/50V
C176 4.7u/50V
D163 RL104
IC160 KA78R08
C163 100u/16V
IC161 KA78R33
C164 10u/16V
IC162 KA78R33
C165 10u/16V
R173
R172 4.7K
R161 4.7K
FD(+)
FD(-)
-29VA
GND
33VA
GND
13VA
GND
3.8VA
3.8VA
GND
5.3VA
5.3VA
GND
GND
PVS01
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
J1V2 DAX-15
J1A4 AUDIO
J1V5 DAX-15
J1A3 AUDIO
J1V4 DAX-15
J1V3 DAX-15
J1A2 AUDIO
Q168 KTA1273
R178 1.0K
R179 330
R180 330
C169
Q167 KTA1273
C168 10u/16V
R175 1.0K
R176 330
R177 330
BC101 HB
Q166 KTC3205
R174 4.7K
ZD161 5.6C
C166 4.7U/50V
C167 10u/16V
Q169 KTC3875
R181 47K

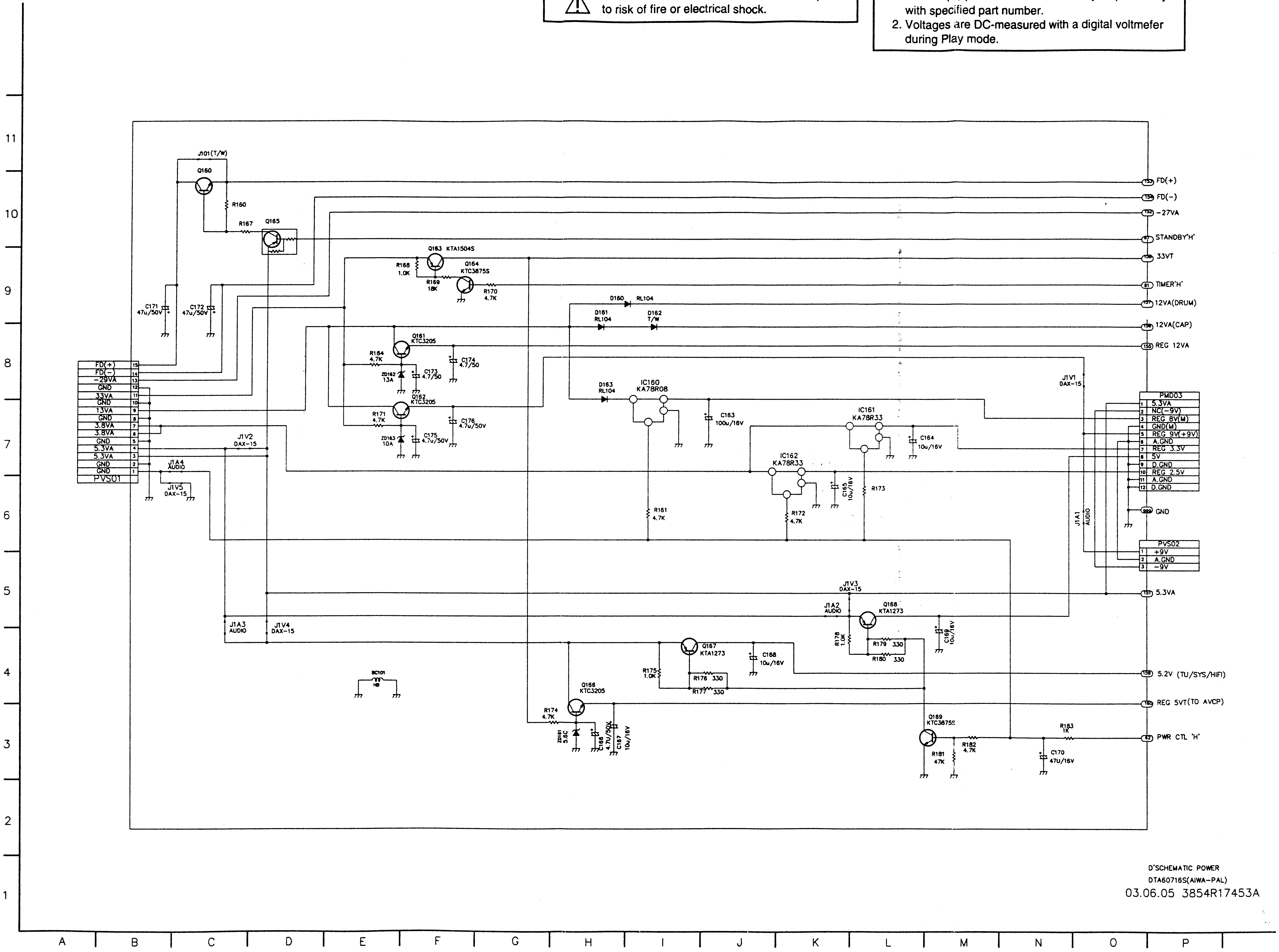
• POWER SCHEMATIC DIAGRAM

NOTE: Warning

⚠ Parts that are shaded are critical With respect to risk of fire or electrical shock.

NOTE:

1. Shaded(■) parts are critical for safety.Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmefer during Play mode.



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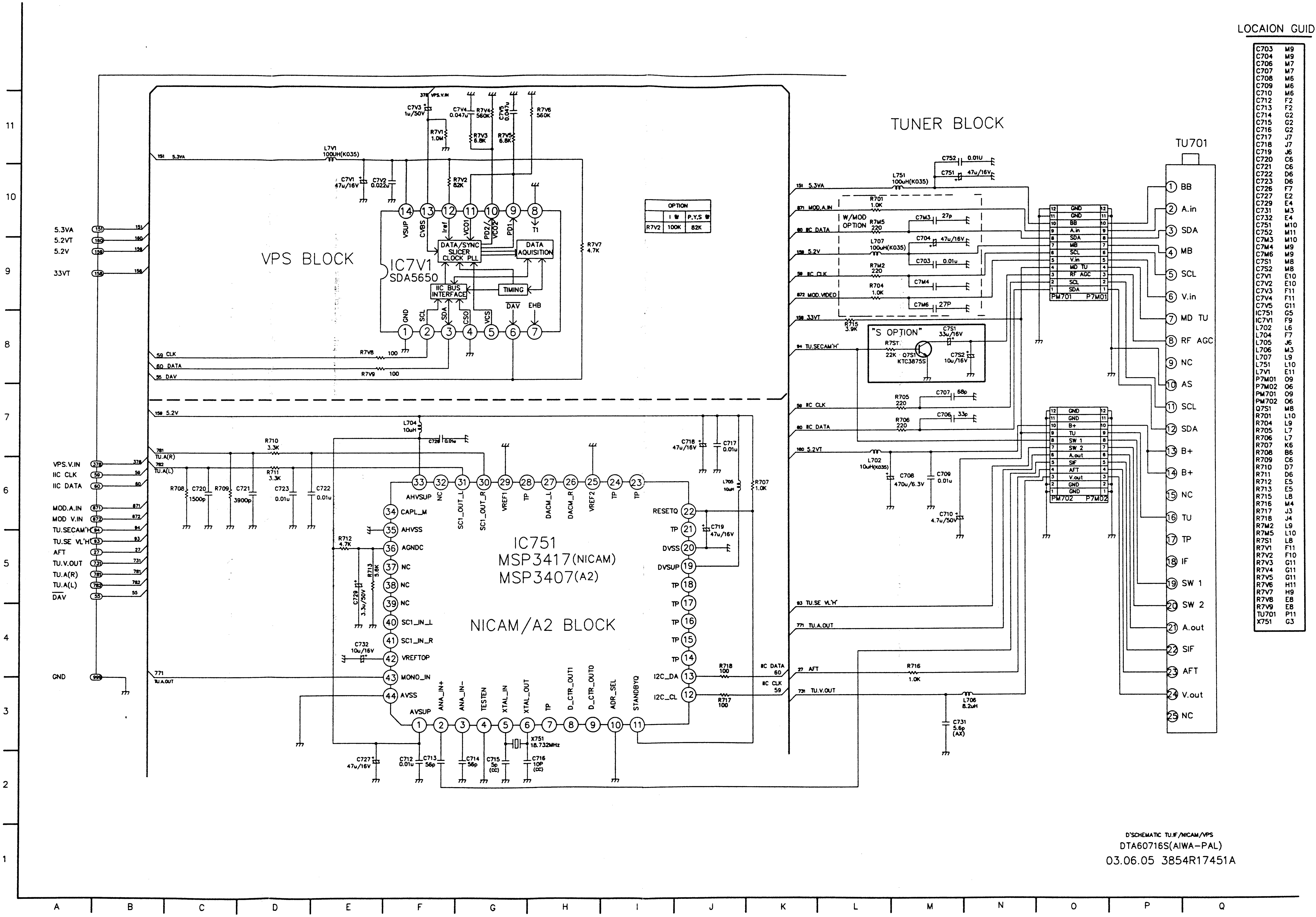
P
J101(T/W)
Q160
R160
R167
Q165
C171
47u/50V
C172
47u/50V
PVS01
15 FD(+)
14 FD(−)
13 −29VA
12 GND
11 33VA
10 GND
9 13VA
8 GND
7 3.8VA
6 3.8VA
5 GND
4 5.3VA
3 5.3VA
2 GND
1 GND
J1A4
AUDIO
J1V5
DAX-15
J1V2
DAX-15
Q163 KTA1504S
R168
1.0K
R169
18K
Q164
KTC3875S
R170
4.7K
Q161
KTC3205
R184
4.7K
ZD162
13A
C173
4.7/50
C174
4.7/50
Q162
KTC3205
R171
4.7K
ZD163
10A
C175
4.7u/50V
C176
4.7u/50V
D160 RL104
D161
RL104
D162
T/W
D163
RL104
IC160
KA78R08
C163
100u/16V
R161
4.7K
IC161
KA78R33
C164
10u/16V
IC162
KA78R33
C165
10u/16V
R172
4.7K
R173
J1V1
DAX-15
J1A1
AUDIO
J1A3
AUDIO
J1V4
DAX-15
BC101
HB
J1V3
DAX-15
J1A2
AUDIO
Q168
KTA1273
R178
1.0K
R179 330
R180 330
C169
10u/16V
Q167
KTA1273
C168
10u/16V
R175
1.0K
R176 330
R177 330
Q166
KTC3205
R174
4.7K
ZD161
5.6C
C166
4.7U/50V
C167
10u/16V
Q169
KTC3875S
R181
47K
R182
4.7K
R183
1K
C170
47U/16V
153 FD(+)
154 FD(−)
152 −27VA
67 STANDBY'H'
156 33VT
61 TIMER'H'
157 12VA(DRUM)
158 12VA(CAP)
155 REG 12VA
PMD03
1 5.3VA
2 NC(−9V)
3 REG 8V(M)
4 GND(M)
5 REG 9V(+9V)
6 A.GND
7 REG 3.3V
8 5V
9 D.GND
10 REG 2.5V
11 A.GND
12 D.GND
999 GND
PVS02
1 +9V
2 A.GND
3 −9V
151 5.3VA
159 5.2V (TU/SYS/HIFI)
160 REG 5VT(TO AVCP)
62 PWR CTL 'H'
D'SCHEMATIC POWER
DTA60716S(AIWA-PAL)
03.06.05 3854R17453A

• TU/IF. ACSS SCHEMATIC DIAGRAM


VPS BLOCK
IC7V1
SDA5650
DATA/SYNC SLICER CLOCK PLL
DATA AQUISITION
IIC BUS INTERFACE
TIMING
OPTION
R7V2 100K 82K
NICAM/A2 BLOCK
IC751
MSP3417(NICAM)
MSP3407(A2)
X751 18.732MHz
TUNER BLOCK
TU701
W/MOD OPTION
"S OPTION"
Q7S1 KTC3875S
PM701 P7M01
PM702 P7M02
BB
A.in
SDA
MB
SCL
V.in
MD TU
RF AGC
NC
AS
SCL
SDA
B+
B+
NC
TU
TP
IF
SW 1
SW 2
A.out
SIF
AFT
V.out
NC
5.3VA
5.2VT
5.2V
33VT
VPS.V.IN
IIC CLK
IIC DATA
MOD.A.IN
MOD V.IN
TU.SECAM'H'
TU.SE VL'H'
AFT
TU.V.OUT
TU.A(R)
TU.A(L)
DAV
GND
A
B
C
D
E
F
G
H
I
J
K
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M
N
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Q
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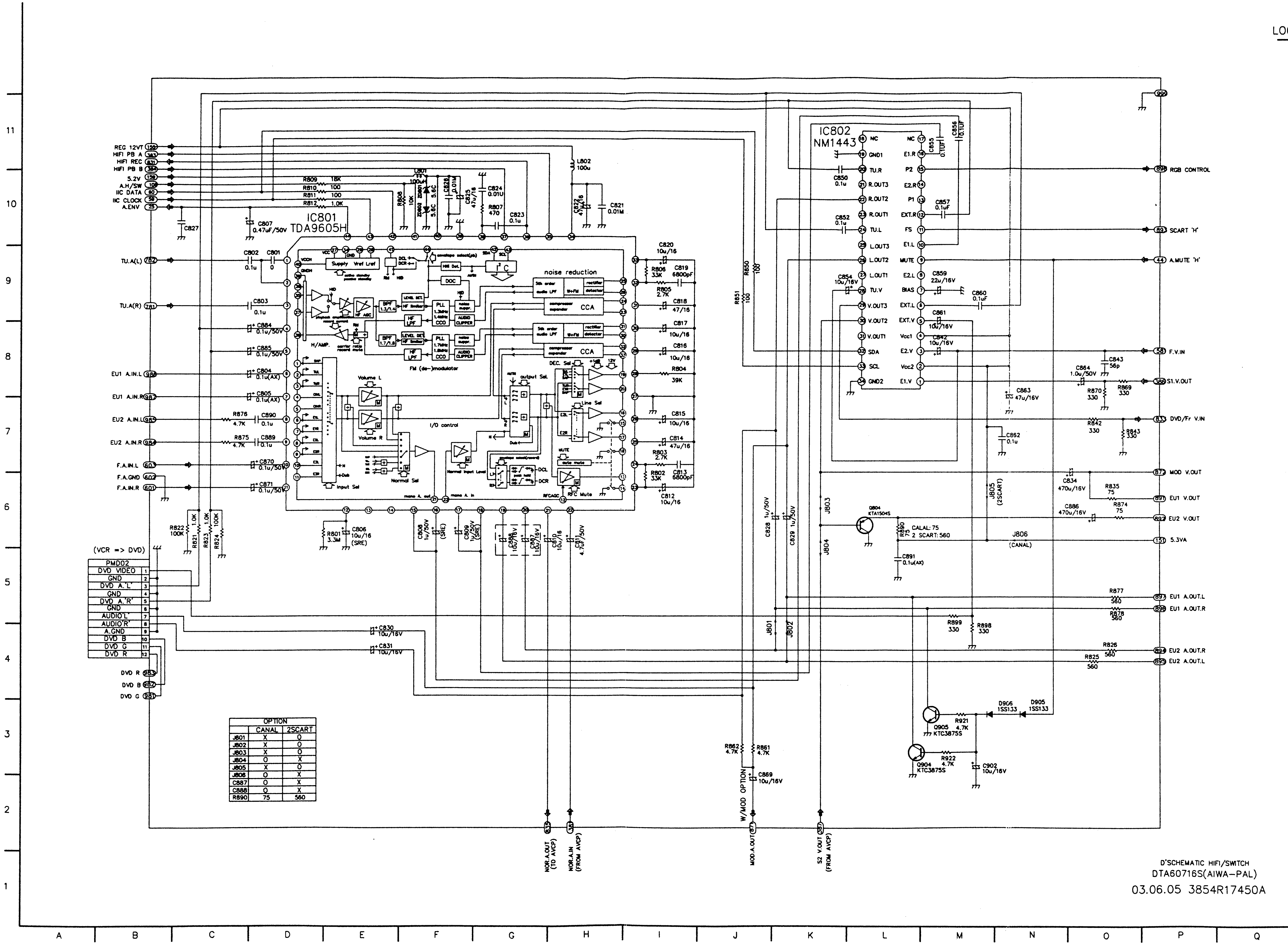
D'SCHEMATIC TU.IF/NICAM/VPS
DTA60716S(AIWA-PAL)
03.06.05 3854R17451A

LOCAION GUIDE

C703	M9
C704	M9
C706	M7
C707	M7
C708	M6
C709	M6
C710	M6
C712	F2
C713	F2
C714	G2
C715	G2
C716	G2
C717	J7
C718	J7
C719	J6
C720	C6
C721	C6
C722	D6
C723	D6
C726	F7
C727	E2
C729	E4
C731	M3
C732	E4
C751	M10
C752	M11
C7M3	M10
C7M4	M9
C7M6	M9
C7S1	M8
C7S2	M8
C7V1	E10
C7V2	E10
C7V3	F11
C7V4	F11
C7V5	G11
IC751	G5
IC7V1	F9
L702	L6
L704	F7
L705	J6
L706	M3
L707	L9
L751	L10
L7V1	E11
P7M01	O9
P7M02	O6
PM701	O9
PM702	O6
Q7S1	M8
R701	L10
R704	L9
R705	L7
R706	L7
R707	K6
R708	B6
R709	C6
R710	D7
R711	D6
R712	E5
R713	E5
R715	L8
R716	M4
R717	J3
R718	J4
R7M2	L9
R7M5	L10
R7S1	L8
R7V1	F11
R7V2	F10
R7V3	G11
R7V4	G11
R7V5	G11
R7V6	H11
R7V7	H9
R7V8	E8
R7V9	E8
TU701	P11
X751	G3

• HIFI/TUNER SCHEMATIC DIAGRAM


IC801
TDA9605H
IC802
NM1443
REG 12VT
HIFI PB A
HIFI REC
HIFI PB B
5.2V
A.H/SW
IIC DATA
IIC CLOCK
A.ENV
TU.A(L)
TU.A(R)
EU1 A.IN.L
EU1 A.IN.R
EU2 A.IN.L
EU2 A.IN.R
F.A.IN.L
F.A.GND
F.A.IN.R
(VCR => DVD)
PMD02
DVD VIDEO
GND
DVD A.'L'
GND
DVD A.'R'
GND
AUDIO'L'
AUDIO'R'
A.GND
DVD B
DVD G
DVD R
DVD R
DVD B
DVD G
noise reduction
CCA
H/AMP.
FM (de-)modulator
I/O control
Volume L
Volume R
Input Sel
Normal Sel
output Sel.
Line Sel
DEC. Sel
RFC Mute
RGB CONTROL
SCART 'H'
A.MUTE 'H'
F.V.IN
S1.V.OUT
DVD/Fr V.IN
MOD V.OUT
EU1 V.OUT
EU2 V.OUT
5.3VA
EU1 A.OUT.L
EU1 A.OUT.R
EU2 A.OUT.R
EU2 A.OUT.L
NOR.A.OUT (TO AVCP)
NOR.A.IN (FROM AVCP)
W/MOD OPTION
MOD.A.OUT
S2 V.OUT (FROM AVCP)
CALAL: 75
2 SCART: 560
J806 (CANAL)
J805 (2SCART)
Q804 KTA1504S
Q905 KTC3875S
Q904 KTC3875S
D906 1SS133
D905 1SS133
11
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A
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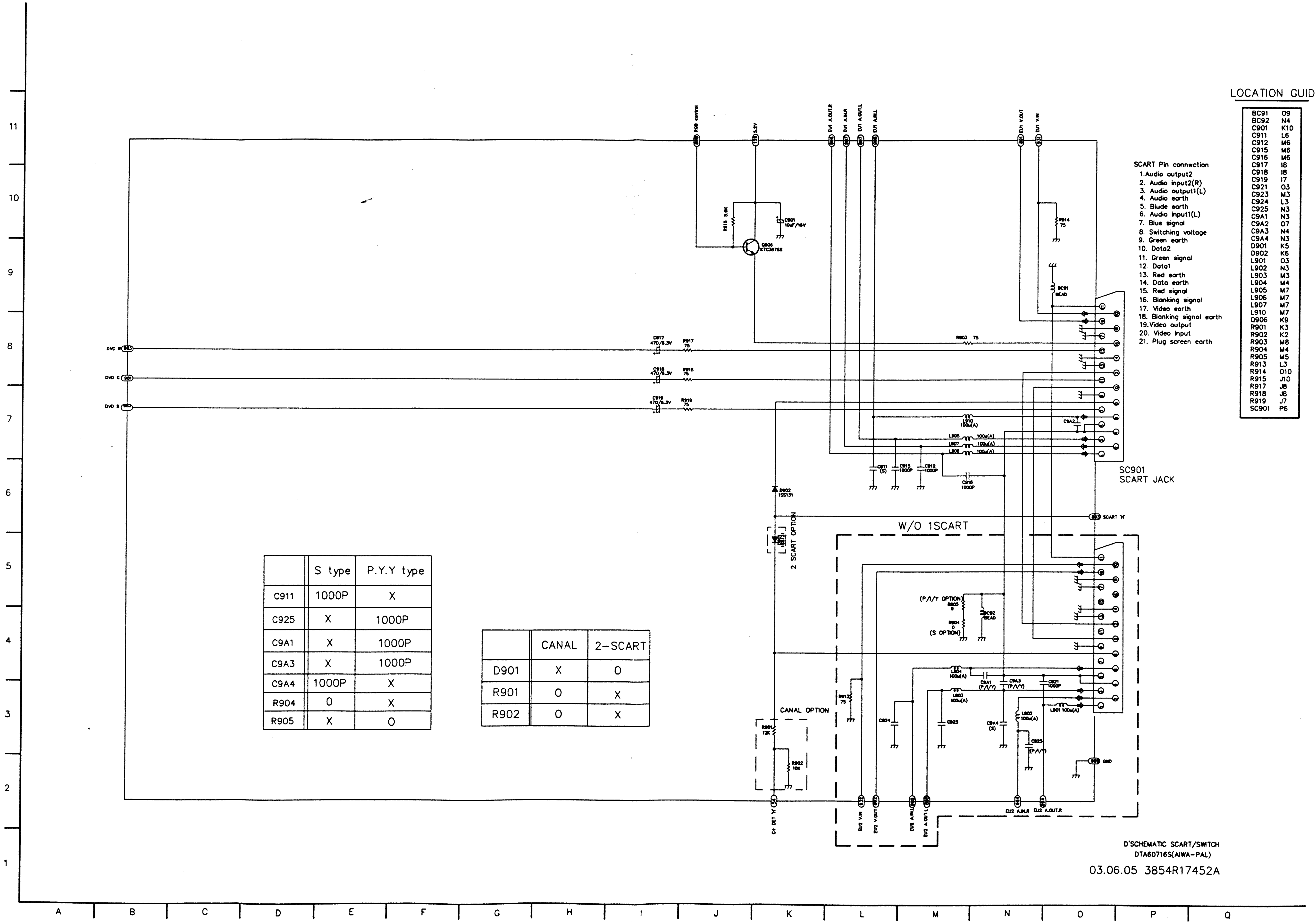
OPTION		
	CANAL	2SCART
J801	X	O
J802	X	O
J803	X	O
J804	O	X
J805	X	O
J806	O	X
C887	O	X
C888	O	X
R890	75	560

D'SCHEMATIC HIFI/SWITCH
DTA60716S(AIWA-PAL)
03.06.05 3854R17450A

LOCATION GUIDE

C801	D9
C802	C9
C803	C9
C804	D8
C805	D8
C806	E6
C807	D10
C808	F6
C809	F6
C810	H6
C811	H6
C812	I6
C813	I6
C814	I7
C815	I7
C816	I8
C817	I8
C818	I9
C819	I9
C820	I9
C821	H10
C822	H10
C823	G10
C824	G10
C825	F10
C826	F10
C827	C10
C828	J6
C829	K6
C830	E4
C831	E4
C834	N6
C842	M8
C843	O8
C850	K10
C852	K10
C854	K9
C855	M11
C856	M11
C857	M10
C859	M9
C860	M9
C861	M9
C862	N7
C863	N8
C864	O8
C869	J2
C870	D7
C871	D6
C884	D8
C885	D8
C886	N6
C887	G5
C888	G6
C889	D7
C890	D7
C891	L5
C902	M3
D905	N3
D906	M3
IC801	D10
IC802	K11
J801	J4
J802	K4
J803	K6
J804	K5
J805	M6
J806	N6
L801	F10
L802	H11
PMD02	B5
Q804	L6
Q904	L3
Q905	M3
R801	D6
R802	I6
R803	I7
R804	I8
R805	I9
R806	I9
R807	G10
R808	E10
R809	D10
R810	D10
R811	D10
R812	D10
R821	C6
R822	B6
R823	C6
R824	C5
R825	O4
R826	O4
R835	O6
R842	O7
R843	O7
R850	J9
R851	J9
R861	J3
R862	J3
R869	O8
R870	O8
R874	O6
R875	C7
R876	C7
R877	O5
R878	O5
R890	L6
R898	M4
R899	M4
R921	M3
R922	M3
ZD801	F10
ZD802	F10

• A/V JACK, SCART SCHEMATIC DIAGRAM


RGB control
5.2V
EU1 A.OUT.R
EU1 A.IN.R
EU1 A.OUT.L
EU1 A.IN.L
EU1 V.OUT
EU1 V.IN
R915 5.6K
C901 10uF/16V
Q906 KTC3875S
R914 75
BC91 BEAD
DVD R
DVD G
DVD B
C917 470/6.3V
R917 75
C918 470/6.3V
R918 75
C919 470/6.3V
R919 75
R903 75
L910 100u(A)
C9A2
L905 100u(A)
L907 100u(A)
L906 100u(A)
C911 (S)
C915 1000P
C912 1000P
C916 1000P
D902 1SS131
SC901
SCART JACK
SCART 'H'
W/O 1SCART
2 SCART OPTION
D901
(P/A/Y OPTION)
R905 0
BC92 BEAD
R904 0
(S OPTION)
L904 100u(A)
C9A1 (P/A/Y)
C9A3 (P/A/Y)
C921 1000P
L903 100u(A)
L901 100u(A)
R913 75
C924
C923
C9A4 (S)
L902 100u(A)
C925 (P/A/Y)
GND
CANAL OPTION
R901 12K
R902 10K
C+ DET 'H'
EU2 V.IN
EU2 V.OUT
EU2 A.IN.L
EU2 A.OUT.L
EU2 A.IN.R
EU2 A.OUT.R
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
1
2
3
4
5
6
7
8
9
10
11

	S type	P.Y.Y type
C911	1000P	X
C925	X	1000P
C9A1	X	1000P
C9A3	X	1000P
C9A4	1000P	X
R904	0	X
R905	X	0

	CANAL	2-SCART
D901	X	0
R901	0	X
R902	0	X

SCART Pin connwction

1.Audio output2
2. Audio input2(R)
3. Audio output1(L)
4. Audio earth
5. Blude earth
6. Audio input1(L)
7. Blue signal
8. Switching voltage
9. Green earth
10. Data2
11. Green signal
12. Data1
13. Red earth
14. Data earth
15. Red signal
16. Blanking signal
17. Video earth
18. Blanking signal earth
19.Video output
20. Video input
21. Plug screen earth

LOCATION GUIDE

BC91	O9
BC92	N4
C901	K10
C911	L6
C912	M6
C915	M6
C916	M6
C917	I8
C918	I8
C919	I7
C921	O3
C923	M3
C924	L3
C925	N3
C9A1	N3
C9A2	O7
C9A3	N4
C9A4	N3
D901	K5
D902	K6
L901	O3
L902	N3
L903	M3
L904	M4
L905	M7
L906	M7
L907	M7
L910	M7
Q906	K9
R901	K3
R902	K2
R903	M8
R904	M4
R905	M5
R913	L3
R914	O10
R915	J10
R917	J8
R918	J8
R919	J7
SC901	P6

D'SCHEMATIC SCART/SWITCH
DTA60716S(AIWA-PAL)

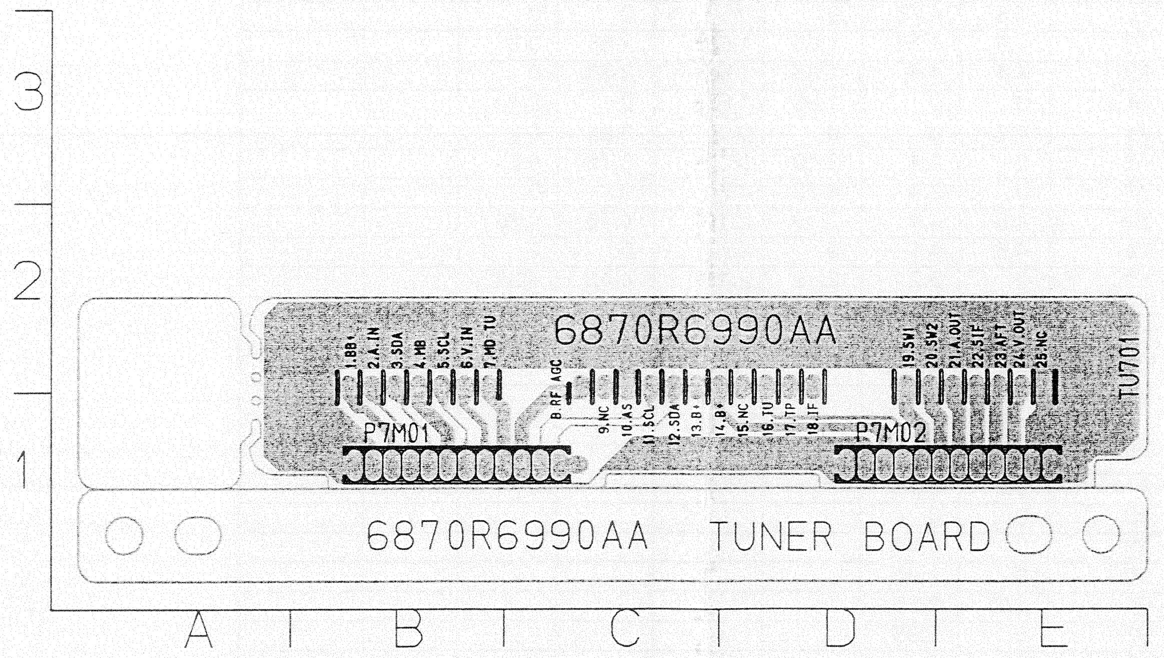
03.06.05 3854R17452A

VCR VOLTAGE SHEET (IC&TR)

MODE	IC501		IC301		IC801		IC302	
	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
PIN NO.								
1	0.9	0	2.2	2.17	0	0	1.78	2.78
2	4.85	4.85	2.2	2.17	0	2.53	0	0
3	0	0	2.2	2.17	9.12	9.06	2.85	2.84
4	0.1	0.1	2.2	2.17	2.48	2.48	0	0
5	0.1	0.1	2.2	2.19	4.8	4.79	2.8	2.83
6	0	0	2.2	2.2	0	2.08	4.73	4.71
7	0.1	0	2.2	0	1.76	0	2	2.02
8	0.1	0	2.2	2.2	0	2.2	0	0
9	0.3	0.9	2.2	2.2	0	0		
10	0.68	0.85	2.2	2.2	0	0		
11	0.02	3.19	4.7	4.67	0	2.5		
12	0.02	0	0.99	0.98	2.5	2.66		
13	0.02	0	0.99	0.96	1.72	2.5		
14	3.8	3.8	1.85	1.76	2.5	4.74		
15	0	2.3	1.54	0.36	4.76	2.52		
16	4.47	0	0	0	2.52	0		
17	0.15	0	2	2.44	0	0.39		
18	4.77	2.38	2.4	2.47	0.56	2.66		
19	4.77	2.38	0	0	2.52	2.66		
20	4.06	0	2.4	3.33	2.52	2.66		
21	4.05	0.1	1.7	2.55	2.52	2.66		
22	0	4.85	2.8	3.09	2.52	0		
23	0	4.82	4.7	4.7	0.17	2.07		
24	0	0	0	0	2.02	0		
25	4.84	0	4.03	0	0	2.07		
26	4.77	2.5	2.15	2.2	2.02	2.07		
27	0	0	1.46	1.8	2.02	0		
28	0	0	2.13	2.1	0	0		
29	0	0	1.7	2.24	3.33	2.84		
30	0	0	2.13	2.13	0	2.84		
31	2.5	2.6	4	4	2.52	3.56		
32	4.19	4.17	2.13	2.13	4.72	4.71		
33	4.23	4.17	2.35	2.35	2.35	2.33		
34	0	0	2.8	3.1	2.35	0		
35	1.48	1.5	2.77	2.82	0	0		
36	1.48	1.4	2.1	2.1	4.76	4.74		
37	4.29	4.7	2.17	2.66	4.76	4.74		
38	2	2	0	0	4.76	4.74		
39	2.11	2	1.72	1.23	4.76	2.33		
40	0	0	0	0	4.6	0		
41	0	0.1	0.84	0.83	2.52	2.64		
42	0	0	2.15	2.15	2.52	2.61		
43	0	0	0	0	2.54	2.65		
44	2.1	2.2	4.69	4.67	2.54	2.65		
45	2.2	2.2	4.72	4.7	0.57	0.41		
46	0	0	2.11	2.94	4.76	4.74		
47	1.3	1.2	2.84	3.65	2.5	0		
48	0	0	2.8	4.23	1.75	2.62		
49	0	0	3.79	3.77	3.78	0		
50	0.9	2.3	0	2.29	0	0		
51	0	0.2	2.11	2.1	1.79	0		
52	1.5	2.3	0	4.7	1.22	0		
53	4.7	4.7	4.18	4	3.81	0		
54	0	1.9	4.18	4.8	9.12	9.06		
55	2.17	2.7	0.68	0.8	6.22	0.22		
56	0.9	2.2	0	0	2.96	0.23		
57	0	0	3.07	2.36	2.16	2.1		
58	0	0	4.43	0	4.53	0		
59	0	0	0.35	0.29	2.54	2.53		
60	2.5	2.3	0.65	0.19	3.81	0		
61	4.6	4.5	1.07	2.23	3.13	0.22		
62	4.3	4.3	0	0	3.86	0		
63	4.4	0.1	3.72	3.7	3.8	0		
64	0	0.1	0.97	1.23	2.45	0		
65	1.1	0.8	1.66	0.72	3.84	0.29		
66	4.7	4.75	1.66	0.72	4.03	0.3		
67	4.7	4.75	1.66	0.72	3.85	0.3		
68	4.7	3.8	1.66	4.62	3.85	0.3		
69	4.7	4.7	4.7	4.68	0	0		
70	4.2	4.1	0	0	0	0		
71	4.8	4.76	0	0	0	0		
72	4.8	4.76	1.65	1.65	3.85	0.3		
73	4.4	4.4	1.65	1.65	3.85	0		
74	0	0	1.65	1.65	0	2.49		
75	4.7	0	0	0	3.85	0.2		
76	0	2.4	2.19	0	3.15	0.2		
77	0	2.4	4.72	4.7	0	0		
78	4.5	4.4	2.19	2.18	4.45	4.33		
79	4.6	4.6	0	0	0	0		
80	0	3.2	2.19	2.18	4.45	4.32		
81	0	0						
82	3.3	3.3						
83	4.4	0						
84	0	0						
85	1.3	1.2						
86	0	1.2						
87	3.5	2.18						
88	0	0						
89	0	0.19						
90	0	1.25						
91	2.3	2.35						
92	0	2.35						
93	0	0						
94	2.3	2.32						
95	2.3	2.32						
96	0	2.34						
97	0.6	0						
98	4.7	4.69						
99	0	4.77						
100	0.6	0.8						

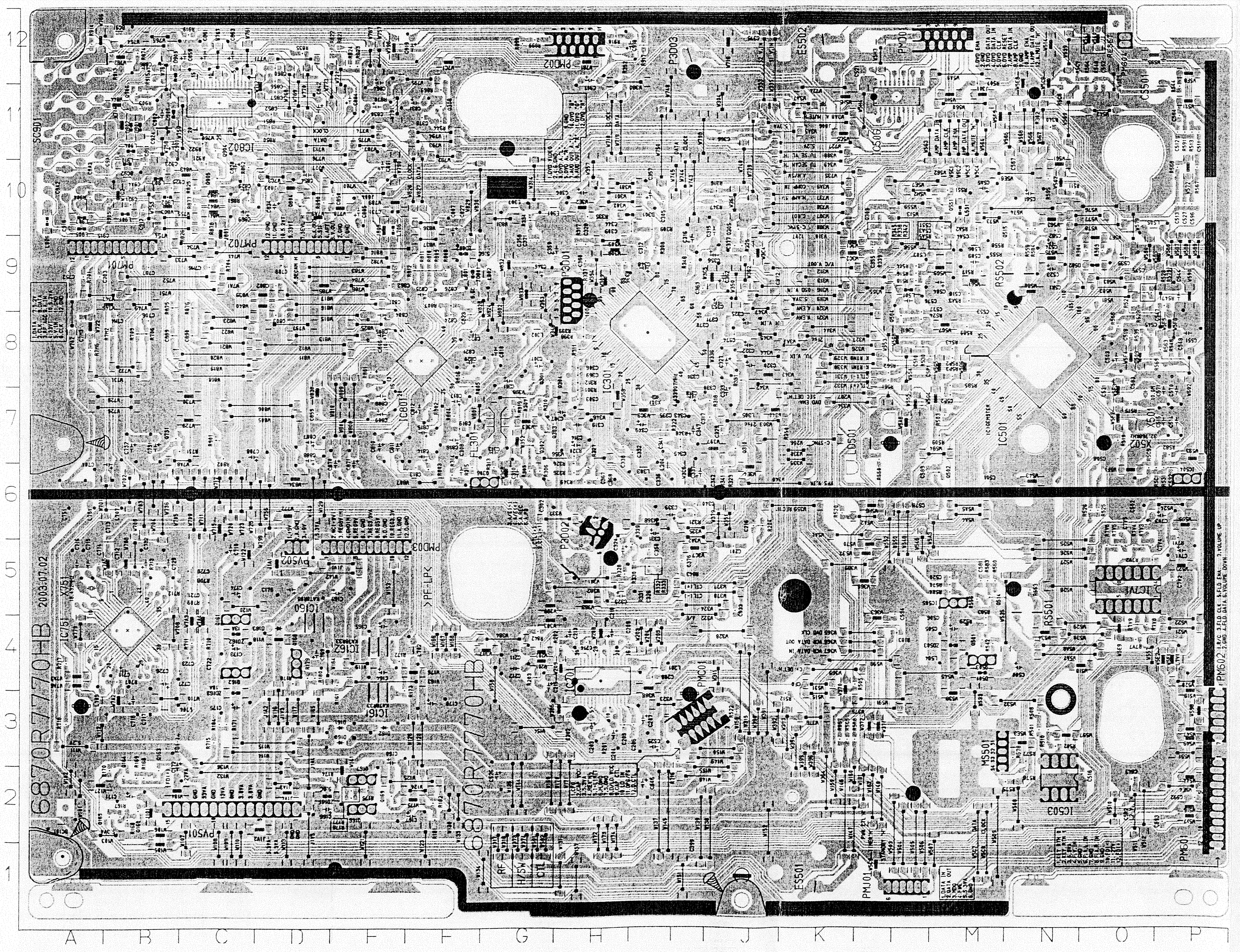
PRINTED CIRCUIT DIAGRAMS

• TUNER P.C BOARD


3
2
1
A
B
C
D
E
6870R6990AA
1.BB+
2.A.IN
3.SDA
4.MB
5.SCL
6.V.IN
7.MD TU
8.RF AGC
9.NC
10.AS
11.SCL
12.SDA
13.B+
14.B+
15.NC
16.TU
17.TP
18.IF
19.SW1
20.SW2
21.A.OUT
22.SIF
23.AFT
24.V.OUT
25.NC
TU701
P7M01
P7M02
6870R6990AA TUNER BOARD

P7M01	B1
P7M02	D1
TU701	B2

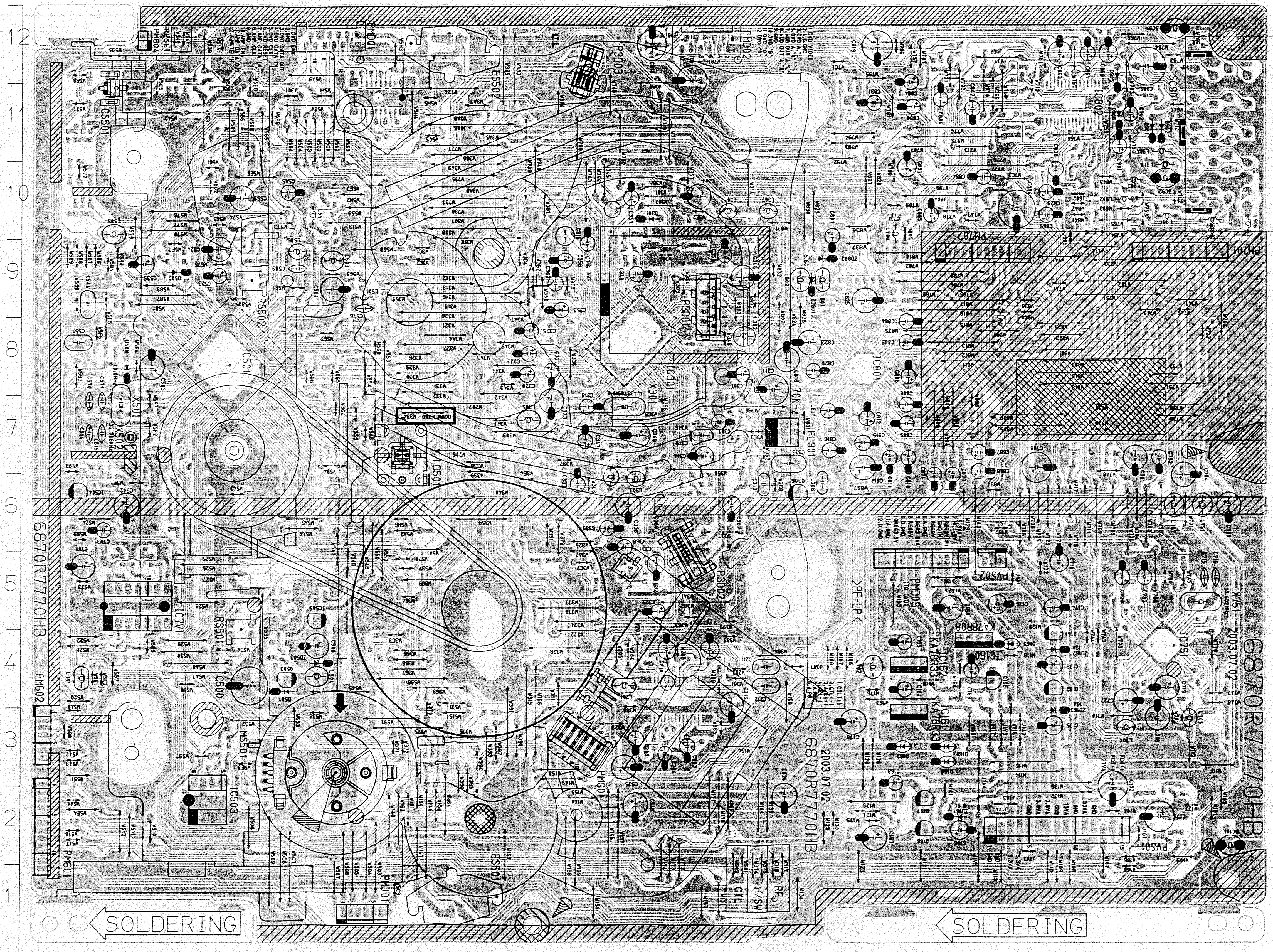
• MAIN P.C BOARD (SOLDER SIDE)



LOCATION GUIDE

C201	J5	C5A3	M9	Q502	M6	R348	I7	R5C9	06
C202	H3	C5A4	M9	Q504	L8	R349	H6	R5P2	M8
C205	H3	C5K1	N9	Q514	M5	R350	K7	R5P3	M8
C206	I3	C5P1	L8	Q515	N10	R351	J8	R5R8	K3
C208	I4	C5P2	M7	Q5S1	M10	R352	H11	R5S1	M10
C209	H4	C5R2	02	Q7S1	B7	R398	H8	R701	A9
C214	H4	C5S1	M10	Q804	D10	R399	H8	R704	C9
C216	J6	C5S3	M8	Q904	C11	R501	N3	R705	B8
C303	H7	C703	A9	Q905	C10	R502	N3	R706	B8
C305	I10	C706	B8	Q906	B11	R503	M7	R707	B4
C306	H8	C707	B9	R160	B2	R504	M5	R708	C5
C309	I10	C709	D9	R161	E4	R505	K4	R709	C5
C312	I9	C712	B5	R167	B2	R507	M11	R710	C4
C317	J7	C713	B5	R168	B2	R508	N3	R711	C4
C321	G9	C714	A5	R169	B2	R509	M7	R712	B5
C326	I5	C717	B3	R170	B2	R510	N3	R713	B5
C328	H9	C720	C5	R171	C3	R511	N10	R715	C3
C329	J7	C721	C5	R172	E4	R512	K3	R716	I3
C330	J8	C722	C4	R173	E3	R513	P11	R717	A4
C332	I7	C723	C4	R174	D2	R514	L9	R718	A3
C334	I8	C726	B4	R175	E2	R515	07	R7M2	B8
C335	I7	C752	A9	R176	E2	R516	L9	R7M5	A8
C338	H7	C7M3	A8	R177	E2	R517	M9	R7S1	B7
C340	I6	C7M4	B8	R178	D4	R518	L9	R7V1	P5
C341	I7	C7M6	C9	R179	D4	R519	07	R7V2	05
C342	J6	C7V2	P5	R180	D4	R520	K6	R7V3	05
C343	I7	C7V4	05	R181	F2	R521	08	R7V4	05
C344	I10	C7V5	05	R182	F2	R522	J3	R7V5	05
C345	I7	C801	E9	R183	L4	R523	08	R7V6	05
C350	I5	C802	D9	R184	C3	R524	L8	R7V7	04
C355	L9	C803	D8	R201	H3	R525	06	R7V8	04
C358	G9	C813	F6	R202	H4	R526	06	R7V9	04
C360	H9	C819	F7	R203	G4	R528	09	R801	E8
C361	L8	C821	F8	R204	J6	R529	M4	R802	F7
C363	I9	C823	F8	R301	H7	R530	L8	R803	F6
C366	J11	C824	F8	R302	N11	R531	P6	R804	F7
C367	H6	C826	F9	R303	09	R535	08	R805	F7
C369	H8	C827	F10	R304	09	R542	M4	R806	F8
C370	J8	C843	02	R305	G6	R543	M8	R807	F9
C371	J8	C850	E10	R306	G6	R544	P11	R808	F9
C372	J9	C852	D11	R307	G7	R546	P8	R809	F9
C374	J8	C855	D7	R308	I9	R547	P9	R810	F9
C375	J12	C856	D12	R309	I10	R548	011	R811	F9
C376	I5	C857	D11	R310	G7	R550	L7	R812	F9
C377	J9	C860	D12	R311	H8	R553	N5	R821	E12
C378	F11	C862	E9	R312	H8	R555	N9	R822	D12
C399	I1	C889	B8	R313	G6	R556	M5	R823	E12
C501	M6	C890	C8	R314	F6	R557	K3	R824	E12
C506	M4	C911	B10	R315	F6	R558	N9	R825	C10
C508	07	C912	B10	R316	J10	R559	N10	R826	B10
C510	L8	C915	A10	R317	H9	R560	M5	R835	D12
C511	P11	C916	A10	R318	J7	R561	L8	R842	G4
C512	P11	C921	B10	R319	G7	R562	L8	R843	I5
C513	P10	C923	B10	R320	H7	R563	P8	R850	D11
C516	02	C924	B11	R321	I6	R564	011	R851	D11
C518	M9	C925	B10	R322	I7	R566	08	R861	C10
C519	08	C9A1	B10	R323	J6	R567	P10	R862	C10
C520	M5	C9A2	A10	R324	H6	R568	P10	R869	F11
C521	L12	C9A3	A10	R325	J9	R569	08	R870	E11
C527	P10	C9A4	B10	R326	H6	R570	M5	R874	B12
C531	07	IC201	H4	R327	H6	R575	N2	R875	B9
C532	P6	IC301	I8	R328	H5	R576	N2	R876	C9
C533	J5	IC506	L11	R329	I5	R577	N3	R877	C10
C534	L4	IC751	B4	R330	I5	R578	N3	R878	C10
C543	P8	IC801	F8	R331	I5	R579	09	R890	D10
C545	08	IC802	C11	R332	I5	R582	P7	R898	G12
C547	08	Q160	B2	R333	I5	R583	M4	R899	G12
C552	011	Q163	B2	R334	G10	R589	M8	R901	C7
C564	P11	Q164	B2	R335	H10	R591	P11	R902	C7
C567	N10	Q165	B2	R336	H9	R595	N10	R903	B11
C575	09	Q169	E2	R337	H9	R5A2	M10	R904	A10
C577	L8	Q301	G8	R338	L10	R5A3	M9	R905	B10
C578	M6	Q302	G7	R339	L9	R5A5	M9	R913	B12
C581	M5	Q303	G7	R340	N11	R5B3	M5	R914	A12
C582	N10	Q304	G8	R341	J6	R5B4	N10	R915	B11
C583	08	Q305	J10	R342	L10	R5B5	M7	R917	I12
C589	L6	Q308	F11	R344	F11	R5C1	P6	R918	H12
C592	P2	Q309	L10	R345	L10	R5C5	K3	R919	C12
C593	P2	Q310	J7	R346	I9	R5C6	N11	R921	C10
C596	P10	Q501	M4	R347	J10	R5C7	N11	R922	C11

• MAIN P.C BOARD (COMPONENT SIDE)



LOCATION GUIDE

BC101	P2	C710	N5	J1A2	M3
BC91	O12	C715	P5	J1A3	M2
BC92	O10	C716	P5	J1A4	M3
C163	L5	C718	O3	J1V1	L5
C164	L4	C719	O4	J1V2	M2
C165	L4	C727	O4	J1V3	M3
C166	M2	C729	O5	J1V4	M2
C167	K2	C731	L10	J1V5	M2
C168	L3	C732	O5	J301	D11
C169	M4	C751	P6	J801	N10
C170	K3	C7S1	O7	J802	N10
C171	O2	C7S2	O7	J803	M10
C172	O2	C7V1	A5	J804	L10
C173	N4	C7V3	A6	J805	L10
C174	N5	C804	L8	J806	F11
C175	N3	C805	L8	L201	H4
C176	M5	C806	L8	L301	J10
C203	I3	C807	K10	L302	J8
C204	I3	C808	L7	L303	H6
C207	H3	C809	L7	L304	H6
C210	I4	C810	L7	L305	G7
C211	J4	C811	L7	L307	J10
C212	J4	C812	K7	L501	E9
C213	I4	C814	K7	L503	D9
C215	J4	C815	K7	L504	D4
C301	J8	C816	K7	L505	B10
C302	J6	C817	K7	L506	D9
C304	I10	C818	J8	L5S1	D10
C307	I7	C820	K8	L702	K4
C308	K6	C822	K8	L704	O3
C310	J6	C825	K9	L705	P3
C311	J8	C828	N10	L706	L10
C313	J7	C829	N10	L707	O6
C314	I7	C830	L11	L751	P6
C315	G10	C831	K11	L7V1	A4
C316	H9	C834	M10	L801	K9
C318	H7	C842	M11	L802	J9
C319	I7	C854	M10	L901	O10
C320	G8	C859	N12	L902	O10
C322	G8	C861	N12	L903	O10
C323	I5	C863	N12	L904	O11
C324	I5	C864	L11	L905	P10
C325	G8	C869	N10	L906	P10
C327	G8	C870	L6	L907	P10
C331	H6	C871	L6	L910	O10
C333	G7	C884	L11	LD501	E7
C336	H6	C885	L10	MS501	D3
C337	H6	C886	O12	P3D01	I8
C339	H6	C887	M7	P3D02	I6
C346	J9	C888	M7	P3D03	H12
C347	H7	C891	L10	PM601	A3
C348	H9	C901	O11	PM602	A3
C349	H7	C902	O11	PM604	B12
C353	G9	C917	I12	PM701	O9
C356	G9	C918	I12	PM702	L9
C357	H10	C919	K12	PMC01	G3
C359	I9	CS501	B11	PMD01	E12
C362	G9	D160	L3	PMD02	J12
C368	I6	D161	L3	PMD03	M5
C500	C4	D162	L3	PMJ01	E1
C502	B6	D163	M4	PVS01	M2
C503	B8	D301	I10	PVS02	M5
C504	D9	D501	D4	Q161	N4
C505	D4	D502	B9	Q162	N4
C509	D9	D509	B8	Q166	L2
C514	A7	D901	O11	Q167	L2
C515	A7	D902	O11	Q168	M4
C523	C9	D905	O12	Q306	J6
C524	C9	D906	O11	Q503	D4
C525	H3	ES501	G1	RS501	C4
C526	J2	ES502	E12	RS502	C9
C535	B9	FL301	J7	SC901	P11
C544	A9	IC160	M4	X301	H7
C546	H2	IC161	L3	X501	B7
C551	A8	IC162	L4	X502	B7
C561	C10	IC501	C8	X751	P5
C570	A7	IC503	C2	ZD161	M2
C571	A7	IC504	A6	ZD162	N4
C576	E9	IC505	D5	ZD163	N3
C5A5	D10	IC7V1	A5	ZD503	D4
C704	O6	J101	O2	ZD801	K9
C708	N7	J1A1	M5	ZD802	K9

SECTION 4. MECHANSIM OF VCR PART

CONTENTS

DECK MECHANISM PARTS LOCATIONS

- **Top View..4-1**
- **Bottom View 4-1**

DECK MECHANISM DISASSEMBLY

1. Drum Assembly 4-2
2. Plate Top 4-4
3. Holder Assembly CST 4-4
4. Opener Door 4-4
5. Bracket Assembly L/D Motor.....................4-4
6. Gear Assembly Rack F/L 4-4
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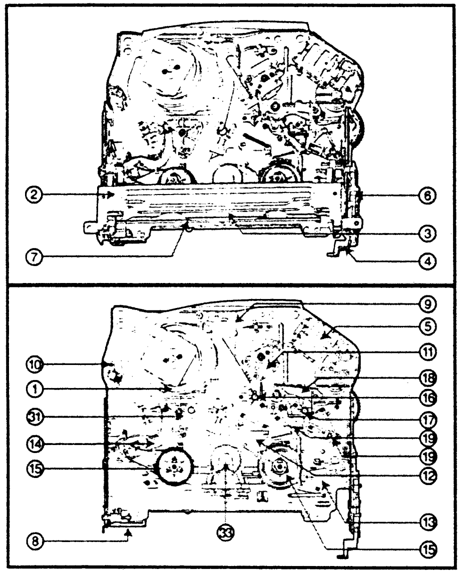
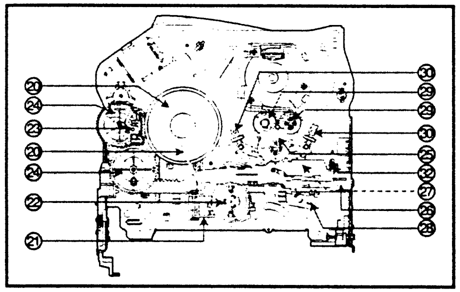
DECK MECHANISM PARTS LOCATIONS

• Top View



• Bottom View



NOTE : When reassembly perform the procedure in the reverse order.

1) When reassembling, confirm Mechanism and Mode Switch Alignment Position (Refer to Page 4-13)
2) When disassembling, the Parts for Starting No. Should be removed first.

Procedure Starting No.		Part	Fixing Type	Figure	View
	1	Drum Assembly	3 Screw	A-1	T
	2	Plate Top	2 Hook	A-2	T
2	3	Holder Assembly CST	Chassis Hole	A-2	T
2	4	Opener Door	Chassis Hole	A-2	T
	5	Bracket Assembly L/D Motor	3 Hook	A-2	T
2,3,4	6	Gear Assembly Rack F/L	1 Hook, Chassis Hole	A-2	T
2,3,4,6	7	Arm Assembly F/L	Chassis Hole	A-2	T
	8	Lever Assembly S/W	1 Hook	A-2	T
	9	Arm Assembly Cleaner	Chassis Embossing	A-3	T
	10	Head F/E	Chassis Embossing	A-3	T
	11	Base Assembly A/C Head	1 Screw	A-3	T
2,3	12	Brake Assembly T	1 Hook	A-4	T
2,3	13	Brake Assembly RS	1 Hook	A-4	T
2,3	14	Arm Assembly Tension	2 Hook	A-4	T
2,3,12,13, 14	15	Reel S/Reel T		A-4	T
	16	Base Assembly P4	Chassis Embossing	A-5	T
	17	Opener Lid	Chassis Embossing	A-5	T
17	18	Arm Assembly Pinch	Shaft	A-5	T
17	19	Lever T/Up / Arm T/Up	1 Hook	A-5	T
17,18	20	Belt Capstan/Motor Capstan	3 Screw	A-6	B
	21	Lever F/R	Locking Tab	A-6	B
20, 21	22	Clutch Assembly D35	Washer	A-6	B
	23	Brake Assembly Capstan	Locking Tab	A-6	B
	24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
	25	Gear Sector	1 Hook	A-7	B
20,21,23, 24,25	26	Plate Slider	Shaft Guide	A-7	B
20,21,23, 24,25,26	27	Lever Tension	1 Hook	A-7	B
2,3,14,20, 21,25,23, 24,26	28	Lever Spring	Locking Tab	A7	B
25	29	Gear Assembly P2/Gear Assembly P3	Boss	A-8	B
2,3,14,25, 29	30	Base Assembly P2/Base Assembly P3	Chassis Slot	A-8	B
2,3,14,25, 29	31	Base Loading	1 Screw	A-9	T
2,3,14	32	Base Tension	Chassis Embossing	A-9	B
2,3,20,21, 22	33	Arm Assembly Idler	Locking Tab	A-9	T

T:Top, B:Bottom

DECK MECHANISM DISASSEMBLY

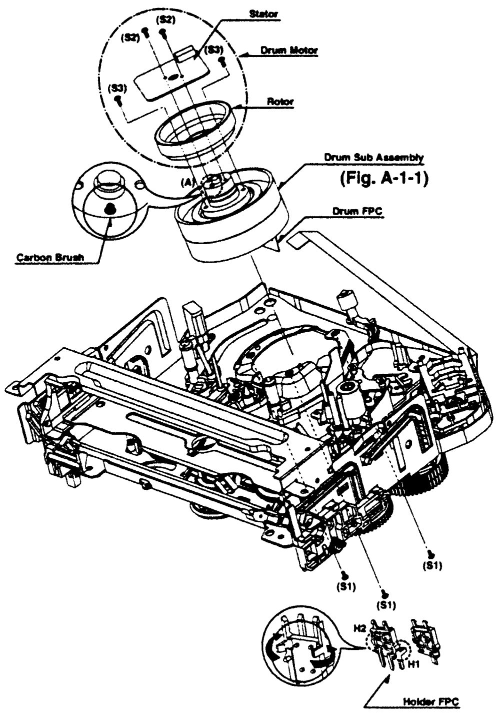


Fig. A-1

1. Drum Assembly (Fig. A-1-1)

1) Unplug the Drum FPC Connector.
2) Remove three Screws(S1) on bottom side and separate the Drum assembly.
3) Unhook (H1), (H2) and separate the Holder FPC and Cap FPC.

1-1. Drum Motor

1) Remove two Screws(S2) and disassemble the Stator of the Drum Motor.
2) Remove two Screws(S3) and separate the Rotor of the Drum Motor from the Drum Sub assembly.

NOTE

When reassembling, confirm (A) portion of the Drum Sub assembly whether the Carbon Brush is in there or not.

(Fig. B-1)

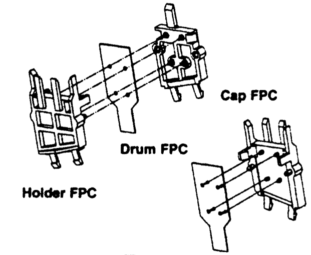


Figure in the opposite direction

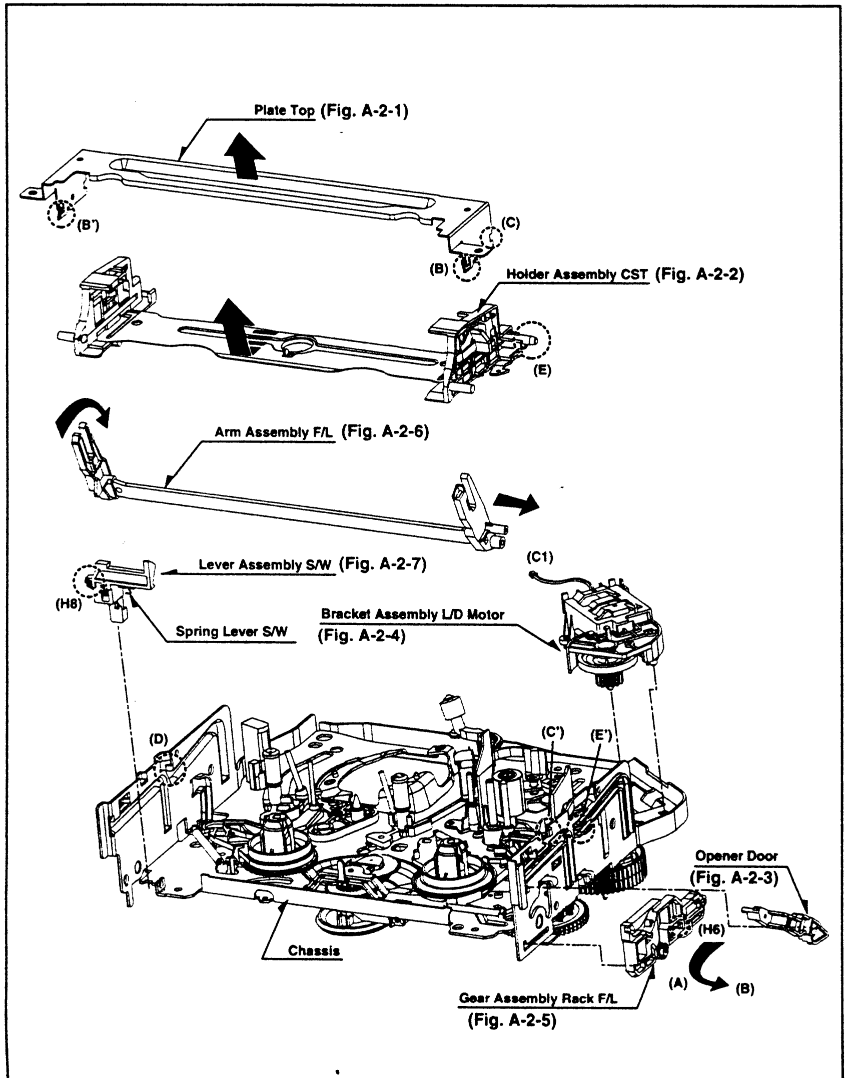


Plate Top (Fig. A-2-1)
(B')
(C)
(B)
Holder Assembly CST (Fig. A-2-2)
(E)
Arm Assembly F/L (Fig. A-2-6)
Lever Assembly S/W (Fig. A-2-7)
(C1)
(H8)
Spring Lever S/W
Bracket Assembly L/D Motor (Fig. A-2-4)
(D)
(C')
(E')
Opener Door (Fig. A-2-3)
(H6)
Chassis
Gear Assembly Rack F/L (Fig. A-2-5)
(A)
(B)

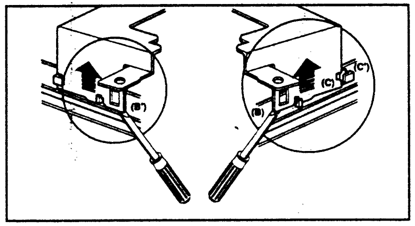
Fig. A-2

2. Plate Top (Fig. A-2-1)

1) Pull the (B) portion of the Plate Top back in direction of arrow and separate the right side of it.
2) pull the (B) portion of the Plate Top back in direction of arrow and separate the left side of it.
   (Used tools : (-) type driver, anything tool with sharp point or flat point.)

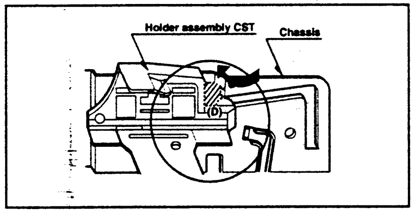
NOTE

(1) When reassembling, push the Plate Top after alignment the two position(C), (C) as below Fig.



3. Holder Assembly CST (Fig.A-2-2)

1) Move the Holder Assembly CST in direction of arrow and separate the left side of it first through the (D) position of the Chassis.


Holder assembly CST
Chassis
(D)

2) Disassemble the right side of the Holder Assembly CST from each guided hole of the Chassis.

NOTE

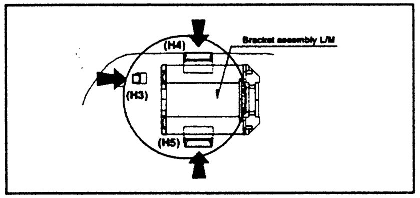
When reassembling, insert the (E) part of the Holder Assembly CST in the (E) hole of the Chassis first and assemble the left side of it.

4. Opener Door (Figure. A-2-3)

1) Turn the Opener Door clockwise and remove it through the guide hole of the Chassis.

5. Bracket Assembly L/D Motor (Fig. A-2-4)

1) Unplug the Connector(C1).
2) Unhook three Hooks(H3, H4, H5) on bottom side of the Chassis, lift up the Bracket Assembly L/M and disassemble the Bracket Assembly L/D Motor.

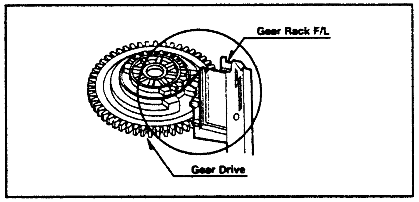

(H4)
Bracket assembly L/M
(H3)
(H5)

6. Gear Assembly Rack F/L (Fig. A-2-5)

1) Move the Gear Assembly Rack F/L in direction of arrow(A) and unhook the Hook(H6) pulling back in front.
2) Separate the Gear Rack F/L in direction of arrow(B).

NOTE

When reassembling, align the gear part of the Gear Assembly Rack F/L with the Gear Drive as below Fig.

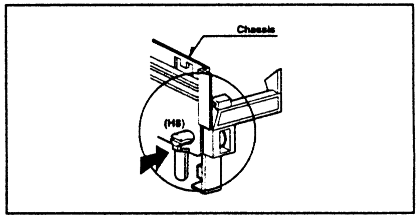

Gear Rack F/L
Gear Drive

7. Arm Assembly F/L (Fig. A-2-6)

1) Move the Arm Assembly F/L in direction of arrow and separate the left side of it first.
2) Disassemble the Arm Assembly F/L from each guided hole of the Chassis.

8. Lever Assembly S/W(Fig. A-2-7)

1) Unhook the Hook(H8) in the left side of the Chassis and remove the Lever Assembly S/W.



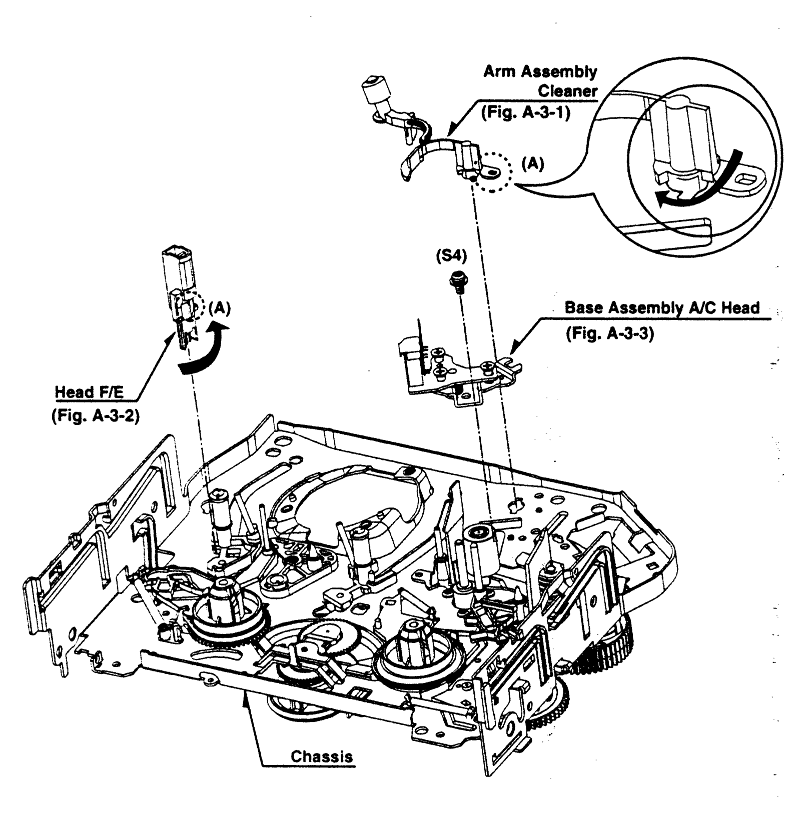

Arm Assembly Cleaner
(Fig. A-3-1)
(A)
(S4)
Base Assembly A/C Head
(Fig. A-3-3)
(A)
Head F/E
(Fig. A-3-2)
Chassis

Fig. A-3

9. Arm Assembly Cleaner (Fig. A-3-1)

1) Breakaway the (A) portion as Fig. A-3-1 from the embossing of the Chassis, turn the Arm assembly Cleaner to clockwise direction and lift it up.

10. Head F/E (Fig. A-3-2)

1) Breakaway the (A) portion of the Head F/E from the embossing of the Chassis, turn it to counterclockwise direction and lift it up.

11. Base Assembly A/C Head (Fig. A-3-3)

1) Remove the Screw(S4) and lift the Base Assembly A/C Head up.

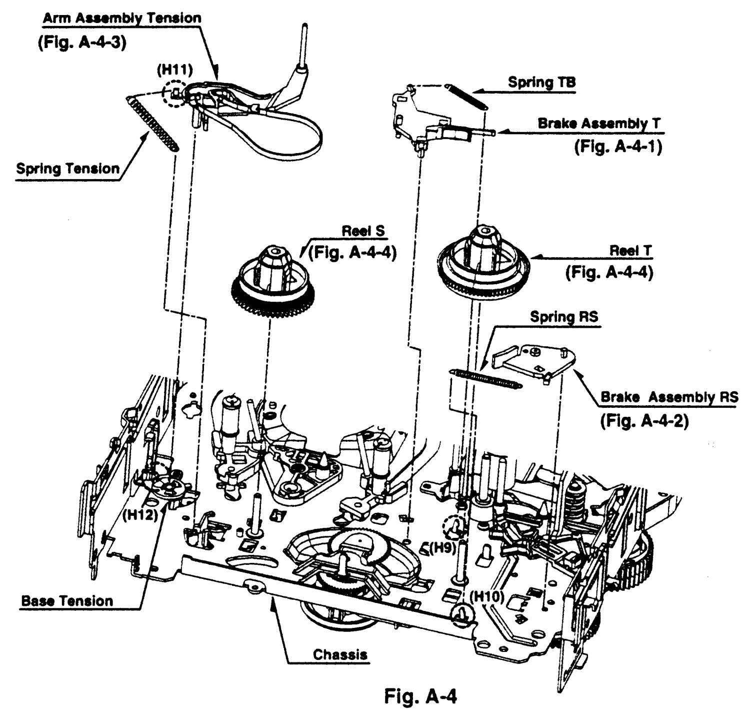

Arm Assembly Tension
(Fig. A-4-3)
(H11)
Spring Tension
Spring TB
Brake Assembly T
(Fig. A-4-1)
Reel S
(Fig. A-4-4)
Reel T
(Fig. A-4-4)
Spring RS
Brake Assembly RS
(Fig. A-4-2)
(H12)
(H9)
(H10)
Base Tension
Chassis

Fig. A-4

12. Brake Assembly T (Fig. A-4-1)

1) Unhook the Spring TB from the Hook(H9) of the Chassis.
2) Lift the Brake Assembly T up.

13. Brake Assembly RS (Fig. A-4-2)

1) Unhook the Spring RS from the Hook(H10) of the Chassis.
2) Lift the Brake Assembly T up.

14. Arm Assembly Tension (Fig. A-4-3)

1) Unhook the Spring Tension from the Hook(H11) of the Arm Assembly Tension.
2) Unhook the Hook(H12) of the Base Tension and lift the Arm Assembly Tension up.

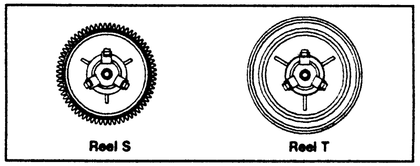
NOTE

Difference for Springs

〰	Spring TB
〰	Spring RS Color (Black)
〰〰〰	Spring Tension

15. Reel S / Reel T (Fig. A-4-4)

1) Difference for Reel S / Reel T


Reel S
Reel T

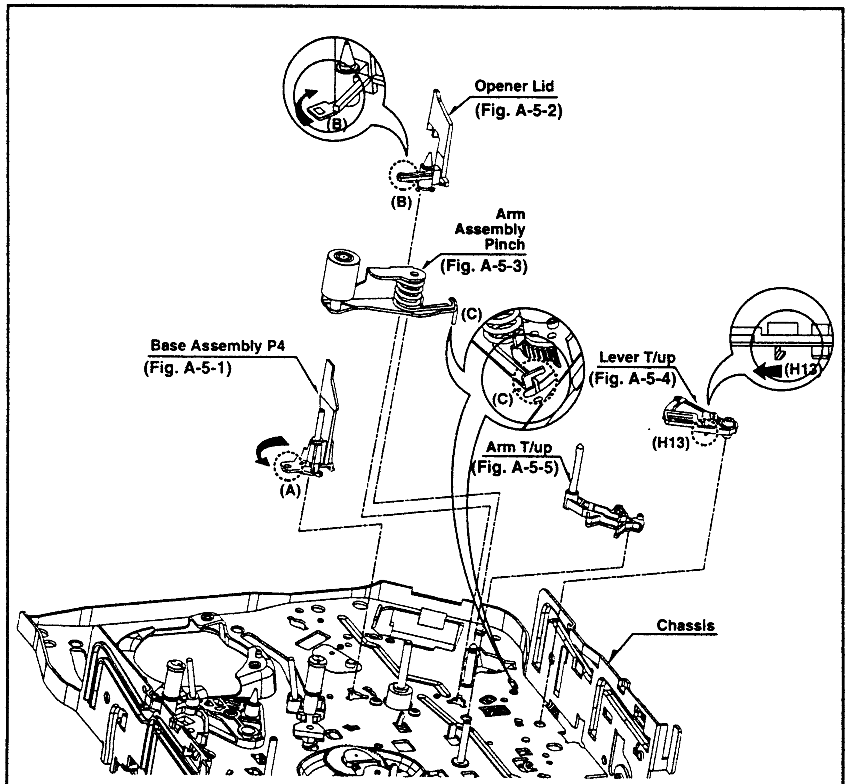

Opener Lid
(Fig. A-5-2)
(B)
(B)
Arm
Assembly
Pinch
(Fig. A-5-3)
(C)
Base Assembly P4
(Fig. A-5-1)
(C)
Lever T/up
(Fig. A-5-4)
(H13)
(H13)
Arm T/up
(Fig. A-5-5)
(A)
Chassis

Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

1) Breakaway the (A) portion of the Base Assembly P4 from the embossing of the Chassis.
2) Turn the Base Assembly P4 to counterclockwise direction and lift it up.

17. Opener Lid (Fig. A-5-2)

1) Breakaway the (B) portion of the Opener Lid from the embossing of the Chassis.
2) Turn the Opener Lid to clockwise direction and lift it up.

18. Arm Assembly Pinch (Fig. A-5-3)

1) Lift the Arm Assembly Pinch up.

NOTE

When reassembling, confirm the (C) portion of the Arm Assembly Pinch is inserted to the Chassis hole correctly as Fig.

19. Lever T/up (Fig. A-5-4)/ Arm T/up (Fig. A-5-5)

1) Unhook the Hook(H13) of the bottom Chassis and lift the Lever T/up up.
2) Lift the Arm T/up up.

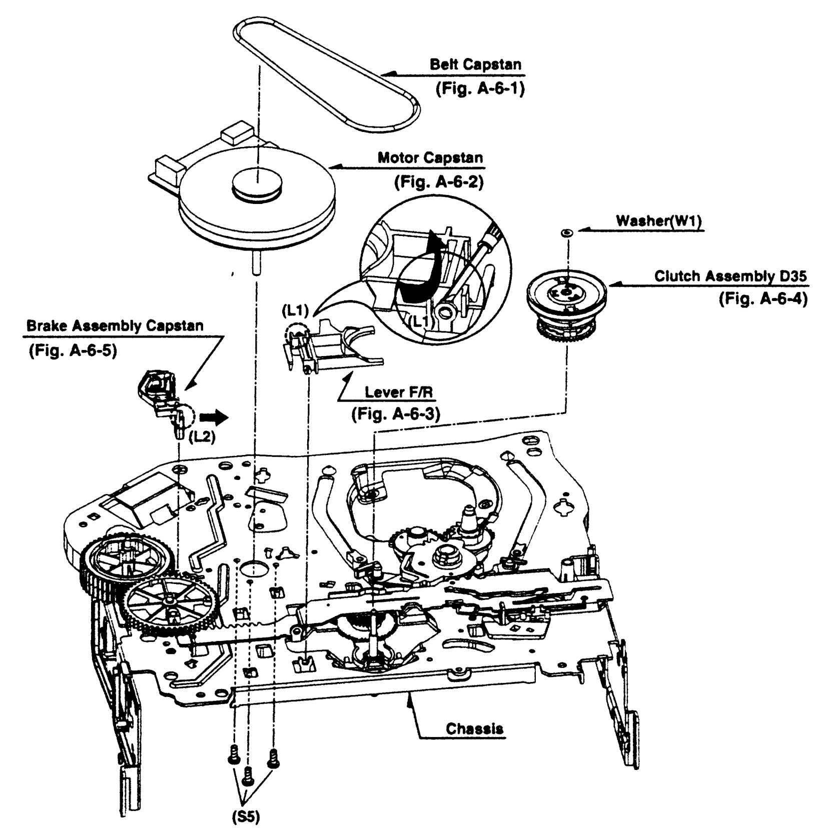

Belt Capstan
(Fig. A-6-1)
Motor Capstan
(Fig. A-6-2)
Washer(W1)
Clutch Assembly D35
(Fig. A-6-4)
(L1)
(L1)
Brake Assembly Capstan
(Fig. A-6-5)
Lever F/R
(Fig. A-6-3)
(L2)
Chassis
(S5)

Fig. A-6

20. Belt Capstan (Fig. A-6-1)/ Motor Capstan (Fig. A-6-2)

1) Remove the Belt Capstan.
2) Remove the three Screws(S5) on bottom Chassis and lift the Motor Capstan up.

21. Lever F/R (Fig. A-6-3)

1) Unlock the Locking Tab(L1) as Fig. A-6-3 and lift the Lever F/R up.

22. Clutch Assembly D35 (Fig. A-6-4)

1) Remove the Washer(W1) and lift the Clutch Assembly D35 up.

23. Brake Assembly Capstan (Fig. A-6-5)

1) Pull the Locking Tab(L2) back in direction of arrow and lift it up.

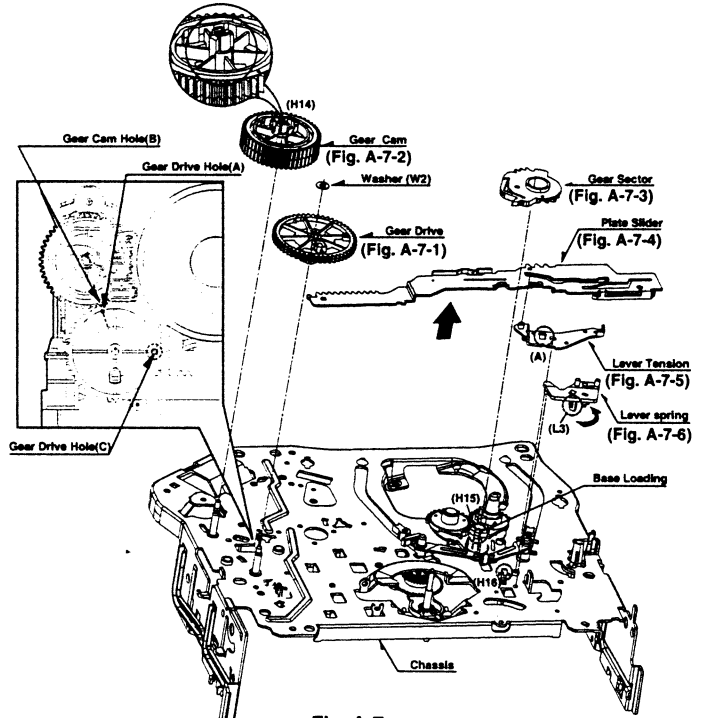

(H14)
Gear Cam Hole(B)
Gear Drive Hole(A)
Gear Cam
(Fig. A-7-2)
Washer (W2)
Gear Sector
(Fig. A-7-3)
Gear Drive
(Fig. A-7-1)
Plate Slider
(Fig. A-7-4)
(A)
Lever Tension
(Fig. A-7-5)
(L3)
Lever spring
(Fig. A-7-6)
Gear Drive Hole(C)
Base Loading
(H15)
(H16)
Chassis

Fig. A-7

24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

1) Remove the Washer(W2) and lift the Gear Drive up.
2) Unhook the Hook(H14) of the Gear Cam and lift the Gear Cam up.

NOTE

When reassembling, align the Gear Drive Hole(A) and the Gear Cam Hole(B) in a straight line after the Gear Drive Hole(C) is aligned with the Chassis Hole as Fig.

25. Gear Sector (Fig. A-7-3)

1) Unhook the Hook(H15) of the Base Loading on bottom Chassis and lift the Gear Sector up.

26. Plate Slider (Fig. A-7-4)

1) Just lift the Plate Slider up.

27. Lever Tension (Fig. A-7-5)

1) Unhook the (A) portion of the Lever Tension from the Hook(H16) of the Chassis.
2) Turn the Lever Tension to counterclockwise direction and lift it up.

28. Lever Spring (Fig. A-7-6)

1) Unlock the Locking Tab(L3) of the bottom Chassis and lift the Lever Spring up.

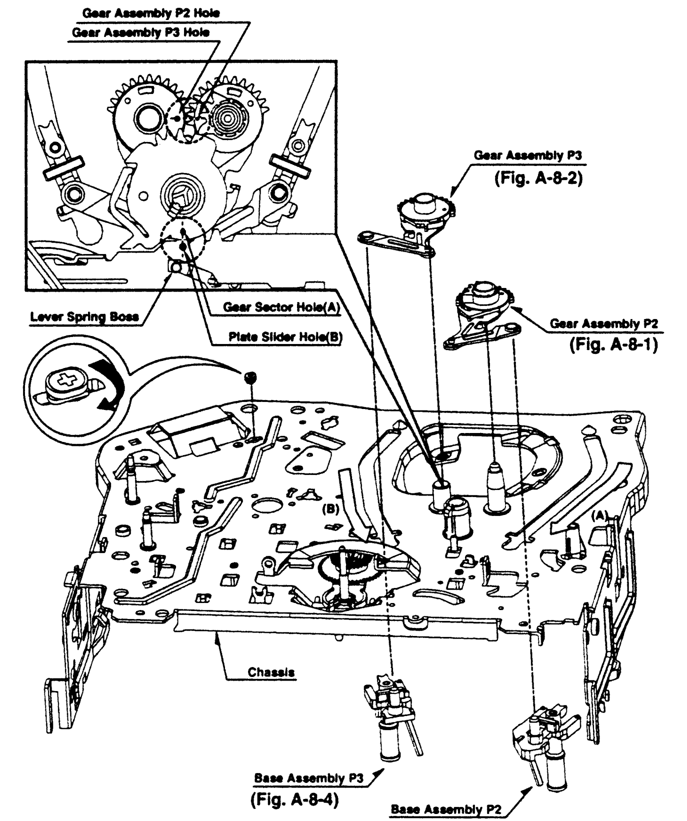

Gear Assembly P2 Hole
Gear Assembly P3 Hole
Gear Assembly P3
(Fig. A-8-2)
Lever Spring Boss
Gear Sector Hole(A)
Plate Slider Hole(B)
Gear Assembly P2
(Fig. A-8-1)
(B)
(A)
Chassis
Base Assembly P3
(Fig. A-8-4)
Base Assembly P2
(Fig. A-8-3)

Fig. A-8

29. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

1) Just lift the Gear Assembly P2 up.
2) Just lift the Gear Assembly P3 up.

NOTE

When reassembling, align the two holes of the Gear Assembly P2 and P3 in a straight line after confirmation whether the Gear Sector Hole(A) and the Plate Slider Hole(B) are aligned or not as Fig.

30. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

1) Move the Base Assembly P2 in direction of arrow(A) along the guide hole of the Chassis and disassemble it on bottom side.
2) Move the Base Assembly P3 in direction of arrow(B) along the guide hole of the Chassis and disassemble it on bottom side.

DECK MECHANISM DISASSEMBLY

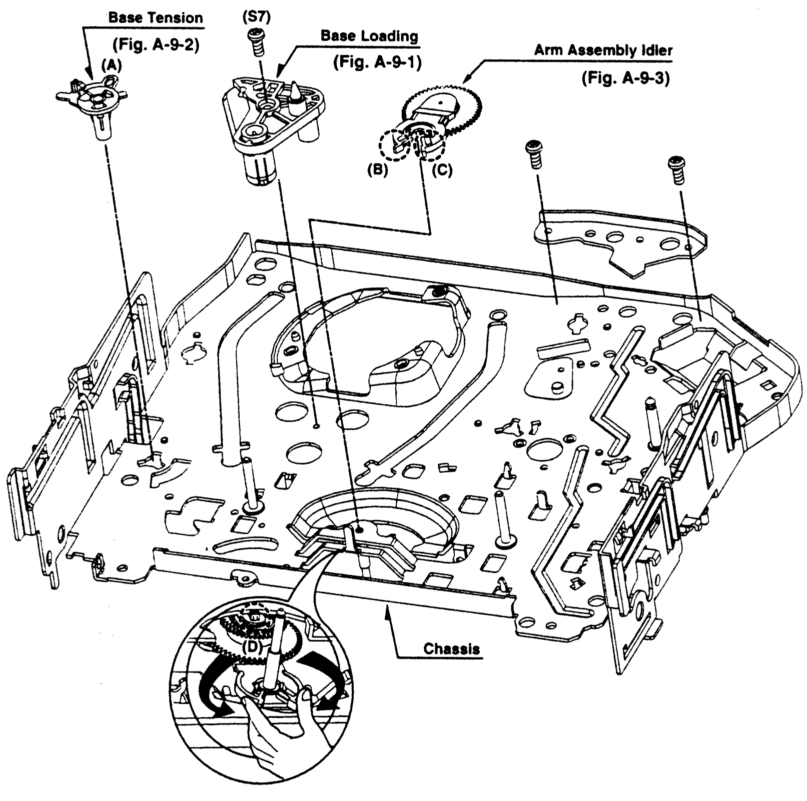


Fig. A-9

31. Base Loading (Fig. A-9-1)

1) Remove the Screw(S7).
2) Lift the Base Loading up.

32. Base Tension (Fig. A-9-2)

1) Breakaway the (A) portion of the Base Tension from the embossing of the Chassis.
2) Turn the Base Tension to counterclockwise direction and lift it up.

33. Arm Assembly Idler (Fig. A-9-3)

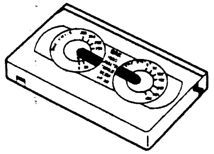
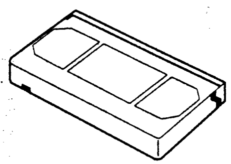
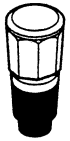
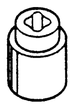
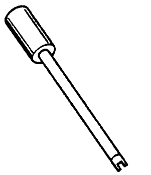
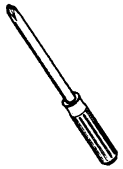
1) Make narrower the two parts, (B) and (C), as Fig. A-9-3.
2) Lift the Arm assembly Idler up.

NOTE

When disassembling, be careful not to be caught the (D) part by the Chassis as Fig.

DECK MECHANISM ADJUSTMENT

• Tools and Fixfures for Service

1. Cassette Torque Meter **SRK-VHT-303(Not SVC part)** **Parts No: D00-D006** 	**2. Alignment Tape** **Parts No NTSC: DTN-001** **PAL:DTN-0002** 	**3. Torque Gauge** **600g.Cm ATG** **Parts No:D00-D002** 
4. Torque Gauge Adaptor **Parts No:D09-R001** 	**5. Post Height Adjusting Driver** **Parts No:DTL-0005** 	**6. + Type Driver (ø 5)** 

1. Mechanism Alignment Position Check

Purpose:To determine if the Mechanism is in the correct position, when a Tape is ejected.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Check Point
· Blank tape	· Eject Mode (with Cassette ejected)	· Mechanism and Mode Switch Position

1) Turn the Power S/W on and eject the Cassette by pressing the Eject Button.
2) Remove the Top Cover and Plate Assembly Top, visually check if the Gear Cam Hole is aligned with the Chassis Hole as below Fig. C-2.
3) IF not, rotate the Shaft of the Loading Motor to either clockwise or counterclockwise until the alignment is as below Fig. C-2.
4) Remove the Screw which fixes the Deck Mechanism and Main Frame and confirm if the Gear Cam is aligned with the Gear Drive as below Fig. C-1(A).
5) Confirm if the Mode S/W on the Main P.C.Board is aligned as below Fig. C-1(B).
6) Remount the Deck Mechanism on the Main P.C.Board and check each operation.

CHECK DIAGRAM

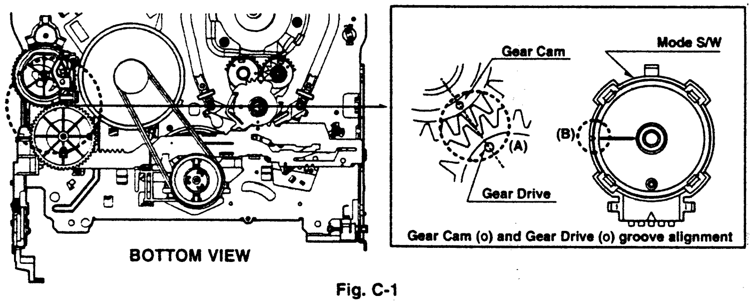


Fig. C-1

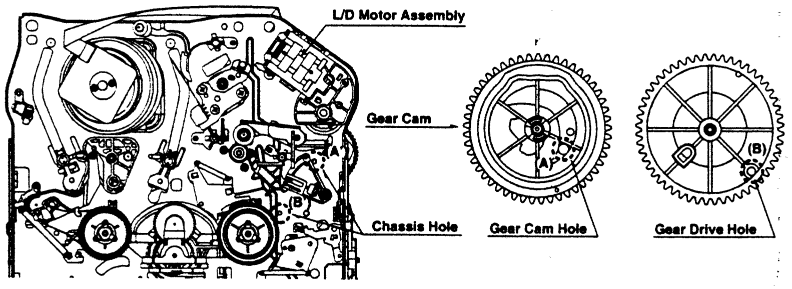


Fig. C-2

2. Preparation for Adjustment (To set the Deck Mechanism of the loading state without inserting a cassette tape).

1) Unplug the power cord from the AC outlet.
2) Disassemble the Top Cover and Plate Assembly Top.
3) Plug the power cord into the AC outlet.
4) Turn the power S/W on and push the Lever Stopper of the Holder Assembly CST to the back for loading the cassette without tape.
Cover the holes of the End Sensors at the both sides of the Chassis to prevent a light leak.
Then the Deck Mechanism drives to the Stop Mode.
In this case, the Deck Mechanism can accept inputs of each mode, however the Rewind and Review operation can not be performed for more than a few seconds because the Take-up Reel Table is in the Stop State and can not be detected the Reel Pulses.

3. Checking Torque

Purpose: To insure smooth transport of the tape during each mode of operation.
If the tape transport is abnormal, then check the torque as indicated by the chart below.

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Checking Method
¥Torque Gauge(600g/cm ATG) ¥Torque Gauge Adaptor ¥Cassette Torque Meter SRK-VHT-303	¥Play (FF) or Review (REW) Mode	¥Perform each Deck Mechanism mode without inserting a cassette tape(Refer to above No.2 Preparation for Adjustment). ¥Read the measurement of the Take-up or Supply Reels on the Cassette Torque Meter(Fig. C-3-2). ¥Attach the Torque Gauge Adaptor to the Torque Gauge and then read the value of it(Fig. C-3-1).

Item	Mode	Test Equipment	Measurement Reel	Measurement Values
Fast Forward Torque	Fast Forward	Cassette Torque Gauge	Take-Up Reel	More than 400g/cm
Rewind Torque	Rewind	Cassette Torque Gauge	Supply Reel	More than 400g/cm
Play Take-Up Torque	Play	Cassette Torque Meter	Take-Up Reel	40~100g/cm
Review Torque	Review	Cassette Torque Meter	Supply Reel	120~210g/cm

NOTE:

The values are measured by using a Torque Gauge and Torque Gauge Adaptor with the Torque Gauge affixed.

NOTE:

The torque reading to measure occurs when the tape abruptly changes direction from Fast Forward to Rewind Mode, when quick braking is applied to both Reels.

¥Torque Gauge (600g.cm ATG)

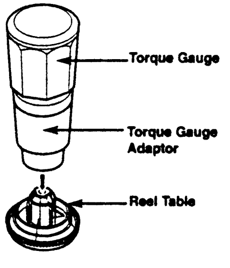


Fig. C-3-1

¥Cassette Torque Meter (SRK-VHT-303)

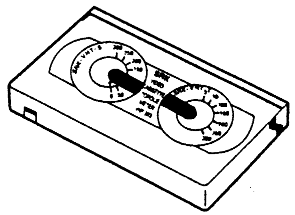


Fig. C-3-2

4.Guide Roller Height Adjustment

Purpose: To regulate the height of the tape so that the bottom of the tape runs along the tape guide line on the Lower Drum.

4-1. Preliminary Adjustment

Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
· Post Height Adjusting Driver	· Play or Review Mode	· Guide Roller Height Adjustment screws on the Supply and Take-Up Guide Rollers.

Adjustment Procedure

1) Confirm if the tape runs along the tape guide line of the Lower Drum.
2) If the tape runs the bottom of the guide line, turn the Guide Roller Height Adjustment Screw to clockwise direction.
3) If it runs the top, turn to counterclockwise direction.
4) Adjust the height of the Guide Roller to be guided to the guide line of the Lower Drum from the starting and ending point of the Drum.

ADJUSTMENT DIAGRAM

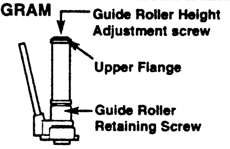

Guide Roller Height Adjustment screw
Upper Flange
Guide Roller Retaining Screw

Fig. C-4-1

4-2. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	Test Conditions VCR(VCP) State	Adjustment Point
· Oscilloscope · Alignment Tape · Post Height Adjusting Driver	· CH-1:PB RF Envelope · CH-2:NTSC: SW 30Hz PAL: SW 25Hz · Head Switching Output Point · RF Envelope Output Point	· Play an Alignment Tape	· Guide Roller Height Adjustment Screws

Adjustment Procedure

1) Play an Alignment Tape after connecting the probe of the Oscilloscope to the RF Envelope Output Test Point and Head Switching Output Test Point.
2) Tracking Control(in PB Mode) : Center Position(When this adjustment is performed after the Drum Assembly has been replaced, set the Tracking Control so that the RF Output is Maximum).
3) Height Adjustment Screw : Flatten the RF waveform. (Fig. C-4-2)
4) Turn(Move) the Tracking Control(in PB Mode) clockwise and counterclockwise.(Fig. C-4-3)
5) Check that any drop of RF Output is uniform at the start and end of the waveform.

NOTE

If the adjustment is excessive or insufficient the tape will jam or fold.

Waveform Diagrams

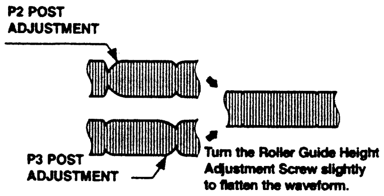

P2 POST ADJUSTMENT
P3 POST ADJUSTMENT
Turn the Roller Guide Height Adjustment Screw slightly to flatten the waveform.

Fig. C-4-2

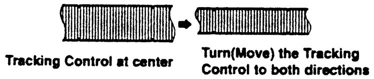
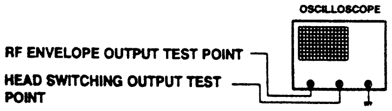

Tracking Control at center
Turn(Move) the Tracking Control to both directions

Fig. C-4-3

Connection Diagram


OSCILLOSCOPE
RF ENVELOPE OUTPUT TEST POINT
HEAD SWITCHING OUTPUT TEST POINT

---

5. Audio/Control (A/C) Head Adjustment

Purpose: To insure that the tape passes accurately over the Audio and Control Tracks in exact alignment of the both Record and Playback Modes.

5-1. Preliminary Adjustment (Height and Tilt Adjustment)

Perform the Preliminary Adjustment, when there is no Audio Output Signal with the Alignment Tape.

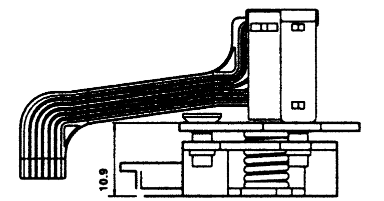
Test Equipment/ Fixture	Test Conditions (Mechanism Condition)	Adjustment Point
· Blank Tape · Screw Driver(+) Type 5mm	· Play the blank tape	· Tilt Adjustment Screw(C) · Height Adjustment Screw(B) · Azimuth Adjustment Screw(A)

Adjustment Procedure/Diagrams

1) Initially adjust the Base Assembly A/C Head as shown Fig. C-5-1 by using the Height Adjustment Screw(B).
2) Play a blank tape and observe if the tape passes accurately over the A/C Head without tape curling or folding.
3) If folding or curling is occured then adjust the Tilt Adjustment Screw(C) while the tape is running to resemble Fig. C-5-3.
4) Reconfirm the tape path after Playback about 4~5 seconds.

NOTE

Ideal A/C head height occurs when the tape runs between 0.2~0.25mm above the bottom edge of the A/C Head core.



A/C Head Base

Fig. C-5-1

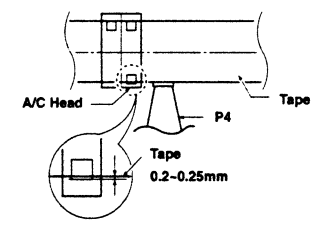
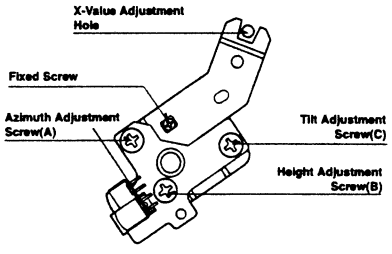

A/C Head
Tape
P4
Tape
0.2~0.25mm

Fig. C-5-3


X-Value Adjustment Hole
Fixed Screw
Azimuth Adjustment Screw(A)
Tilt Adjustment Screw(C)
Height Adjustment Screw(B)

A/C Head Assembly

Fig. C-5-2

5-2. Confirm that the tape passes smoothly between the Take-up Guide and Pinch Roller(using a mirror or the naked eye).

1) After completing Step 5-1.(Preliminary Adjustment), check that the tape passes around the Take-up Guide and Pinch Roller without folding or curling at the top or bottom.
   (1) If folding or curling is observed at the bottom of the Take-up Guide then slowly turn the Tilt Adjustment Screw(C) in the clockwise direction.
   (2) If folding or curling is observed at the top of it then slowly turn the Tilt Adjustment Screw(C) in the counterclockwise direction.

NOTE:

Check the RF envelope after adjusting the A/C Head, if the RF waveform differs from Fig. C-5-4, performs Precise Adjustment to flat the RF waveform.

5-3. Precise Adjustment (Azimuth adjustment)

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
· Oscilloscope · Alignment Tape(SP) · Screw Driver(+) Type 5mm	· Audio output jack	· Play an Alignment Tape 1KHz, 7KHz Sections	· Azimuth Adjustment Screw(A) · Height Adjustment Screw(B)

Adjustment Procedure

1) Connect the probe of the oscilloscope to Audio Output Jack.
2) Alternately adjust the Azimuth Adjustment Screw(A) and the Tilt Adjustment Screw(C) for maximum output of the 1KHz and 7KHz segments, while maintaining the flattest envelope differential between the two frequencies.

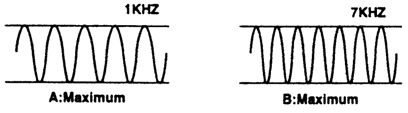
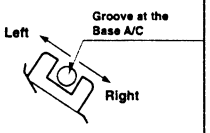


Fig. C-5-4

6. X-Value Adjustment

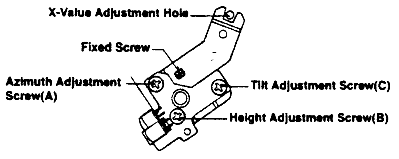
Purpose: To obtain compatibility with the other VCR(VCP) Models.

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Point
· Oscilloscope · Alignment Tape(SP only) · Screw Driver(+) Type 5mm	· CH-1: PB RF Envelope · CH-2: NTSC: SW 30Hz PAL: SW 25Hz · Head Switching Output Test Point · RF Envelope Output Test Point	· Play an Alignment Tape	

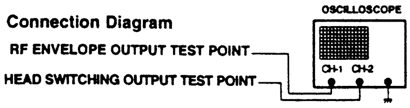
Adjustment Procedure

1) Release the Automatic Tracking to run long enough for tracking to complete it s cycle.
2) Loosen the Fixed Mounting Screw and move the Base Assembly A/C Head in the direction as shown in the diagram to find the center of the peak that allows for the maximum waveform envelope.
   This method should allow the 31 m Head to be centrally located over the 58 m tape track.
3) Tighten the Base Assembly A/C Head mounting Screw.

Adjustment Diagram



Connection Diagram


OSCILLOSCOPE
RF ENVELOPE OUTPUT TEST POINT
HEAD SWITCHING OUTPUT TEST POINT
CH-1
CH-2

7. Adjustment after Replacing Drum Assembly (Video Heads)

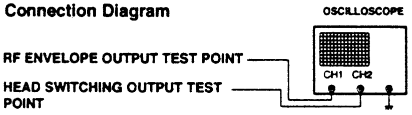
Purpose: To correct for shift in the Roller Guide and X value after replacing the Drum.

Test Equipment/ Fixture	Connection Point	Test Conditions (Mechanism Condition)	Adjustment Points
· Oscilloscope · Alignment Tapes · Blank Tape · Post Height Adjusting Driver · Screw Driver(+) Type 5mm	· CH-1: PB RF Envelope · CH-2: NTSC: SW 30Hz PAL: SW 25Hz · Head Switching Output Test Point · RF Envelope Output Test Point	· Play the Blank Tape · Play an Alignment Tape	· Guide Roller Precise Adjustment · Switching Point · Tracking Preset · X-Value

Checking/Adjustment Procedure

Play a blank tape and check for tape curling or creasing around the Roller Guide. If there is a problem then follow the procedure 4. "Guide Roller Height" and 5. "Audio Control(A/C) Head Adjustment".

Connection Diagram


OSCILLOSCOPE
RF ENVELOPE OUTPUT TEST POINT
HEAD SWITCHING OUTPUT TEST POINT
CH1
CH2

Waveform

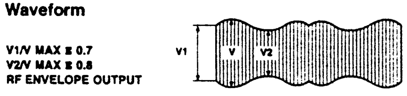


Fig. C-7

8. Check the Tape Travel after Reassembling Deck Assembly.

8-1. Checking Audio and RF Locking Time during playback and after CUE or REV (FF/REW)

Test Equipment/ Fixture	Specification	Connection Points	Test Conditions (Mechanism Condition)
· Oscilloscope · Alignment Tapes(with 6H 3KHz Color Bar Signal) · Stop Watch	· RF Locking Time: Less than 5 sec. · Audio Locking Time:Less than 10sec	· CH-1: PB RF Envelope · CH-2: Audio Output · RF Envelope Output Point · Audio Output Jack	· Play an Alignment Tape (with 6H 3kHz Color Bar Signal)

Checking Procedure

Play an Alignment Tape then change the operating mode to CUE or REV and confirm if the unit meets the above listed specifications.

NOTES:

1) CUE is the forward search mode
2) REV is the backward search mode
3) Refer to the Play mede

8-2. Checking for tape curling or jamming

Test Equipment/ Fixture	Specification	Test Conditions (Mechanism Condition)
· T-160 Tape · T-120 Tape	· Be sure there is no tape jamming or curling at the begining, middle or end of the tape.	· Run the CUE, REV, Play mode at the beginning and the end of the tape.

Checking Procedure

1) Confirm that the tape runs smoothly around the roller guides, Drum and A/C Head Assemblies while abruptly changing operating modes from Play to CUE or REV. This is to be checked at the begining, middle and end sections of the tape.
2) Confirm that the tape passes over the A/C Head Assembly as indicated by proper audio reproduction and proper tape counter performance.

MAINTENANCE/INSPECTION PROCEDURE

1. Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit.
Check with the customer to find out how often the unit is used, and then determine that the unit is ready for inspection and maintenance. Check the following parts.

Phenomenon	Inspection	Replacement
Color beats	Dirt on Full-Erase Head	o
Poor S/N, no color	Dirt on Video Head	o
Vertical or Horizontal jitter	Dirt on Video Head Dirt on tape transport system	o
Low volume, Sound distorted	Dirt on Audio/Control Head	o
Tape does not run. Tape is slack	Dirt on Pinch Roller	o
In Review and Unloading (off mode), the tape is rolled up loosely.	Clutch Assembly D35 torque reduced	o
	Cleaning Drum and transport system	Fig. C-9-3

NOTE

If locations marked with **o** do not operate normally after cleaning, check for wear and replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations and see the Greasing (Page 4-21, 22) for the sections to be lubricated and greased.

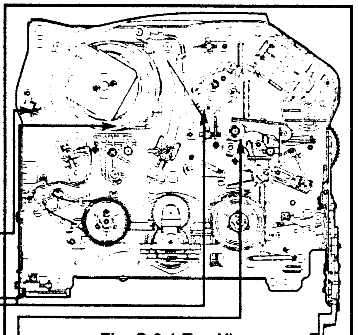

F/E Head
Video Head
A/C Head
Pinch Roller
Belt Capston
Clutch Assembly D35

Fig. C-9-1 Top View

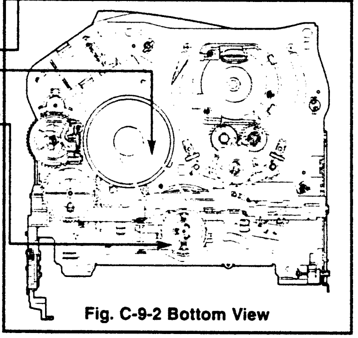


Fig. C-9-2 Bottom View

*** No. (1)~(12) Indicates the Tape Path to be traveled from Supply Reel to Take-up Reel.**

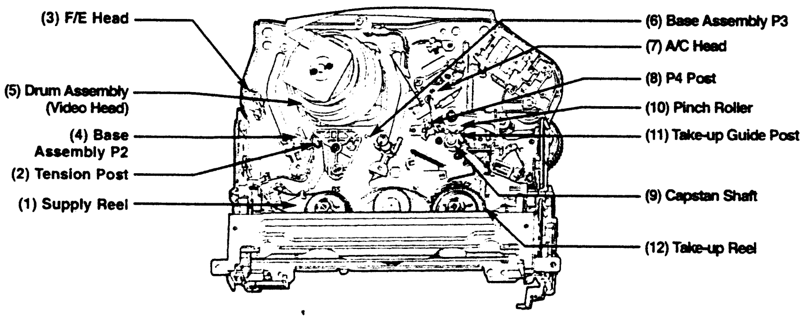

(3) F/E Head
(5) Drum Assembly (Video Head)
(4) Base Assembly P2
(2) Tension Post
(1) Supply Reel
(6) Base Assembly P3
(7) A/C Head
(8) P4 Post
(10) Pinch Roller
(11) Take-up Guide Post
(9) Capstan Shaft
(12) Take-up Reel

Fig. C-9-3 Tape Transport System

MAINTENANCE/INSPECTION PROCEDURE

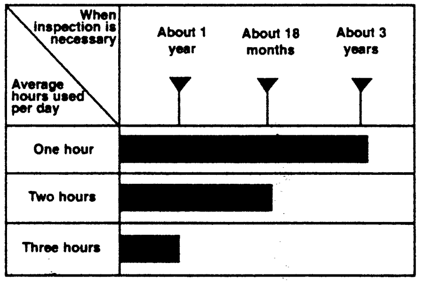
2. Required Maintenance

The recording density of a VCR(VCP) is much higher than that of an audio tape recorder. VCR(VCP) components must be very precise, at tolerances of 1/1000mm, to ensure compatibility with the other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, is necessary.

3. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR(VCP), and the environment in which the VCR(VCP) is used.
But, in general home use, a good picture will be maintained if inspection and maintenance is made every 1,000 hours. The table below shows the relation between time used and inspection period.

Table 1



4. Supplies Required for Inspection and Maintence

(1) Grease : Kanto G-311G (Blue) or equivalent
(2) Isopropyl Alcohol or equivalent
(3) Cleaning Patches
(4) Grease : Kanto G-381(Yellow)

5. Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head
First use a cleaning tape. If the dirt on the head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with Isopropyl Alcohol. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left.
(Do not move the cleaning patch vertically. Make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.)
Thoroughly dry the head. Then run the test tape. If Isopropyl Alcohol remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Clean the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with Isopropyl Alcohol.

NOTES:

① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which moves the tape.
② Make sure that during cleaning you do not touch the tape transport system with excessive force that would cause deformation or damage to the system.

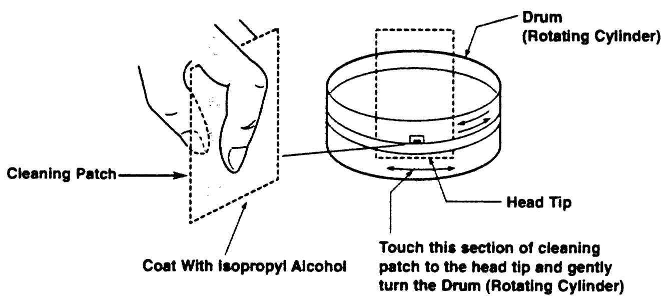

Drum (Rotating Cylinder)
Cleaning Patch
Head Tip
Coat With Isopropyl Alcohol
Touch this section of cleaning patch to the head tip and gently turn the Drum (Rotating Cylinder)

Fig. C-9-4

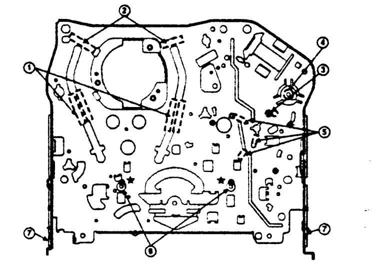
5-2) Greasing

(1) Greasing guidelines

Apply grease, with a cleaning patch. Do not use excessive grease. It may come into contact with the tape transport or drive system. Wipe excessive grease and clean with cleaning patch wetted in Isopropyl Alcohol.

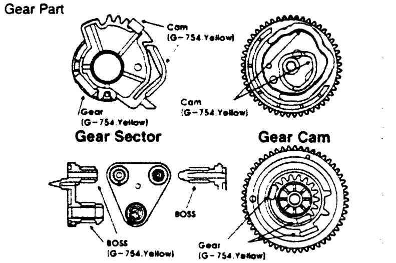
NOTE:Greasing Points

1) Loading Path Inside & Top side
2) Base Assembly P2, P3 stopper
3) Shaft
4) L/D Motor Gear Wheel Part
5) Arm Take-up Rubbing Sections
6)Reel S,T shaft(G381:Yellow)
7) Arm Assembly F/L Rotating Sections



Chassis (Top)

Gear Part

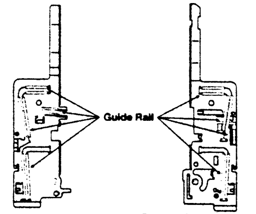

Cam
(G-754.Yellow)
Gear
(G-754.Yellow)
Cam
(G-754.Yellow)
BOSS
BOSS
(G-754.Yellow)
Gear
(G-754.Yellow)

Gear Sector

Gear Cam

Base Loading

Gear Drive



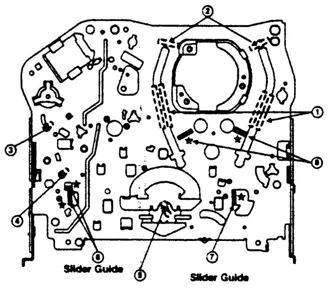
Chassis (Left Side)

Chassis (Right Side)

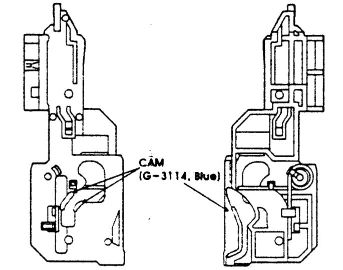
(2) Periodic greasing

Grease specified locations every 5,000 hours.

1) Loading Path Inside & Top side
2) Base Assembly P2,P3 stopper
3) Shaft
4) Shaft
5) Clutch Assembly D35 Shaft
6) Plate Slider Guide Sections
7) Plate Slider Guide Sections
8) Gear Assembly P2, P2 Rubbing Sections


②
①
⑥
③
④
⑤
⑦
Slider Guide
Slider Guide

Chassis (Bottom)


CAM
(G-3114, Blue)

Gear Rack F/L

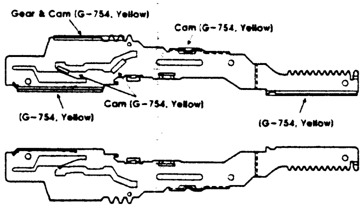
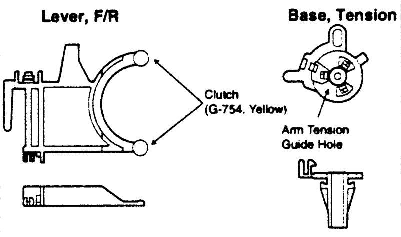
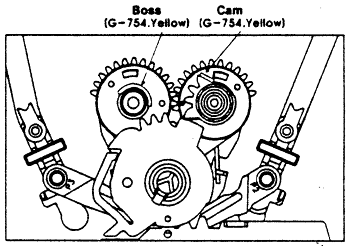

Gear & Cam (G-754, Yellow)
Cam (G-754, Yellow)
Cam (G-754, Yellow)
(G-754, Yellow)
(G-754, Yellow)

Plate Slider

Lever, F/R, Base, Tension


Lever, F/R
Base, Tension
Clutch
(G-754. Yellow)
Arm Tension
Guide Hole

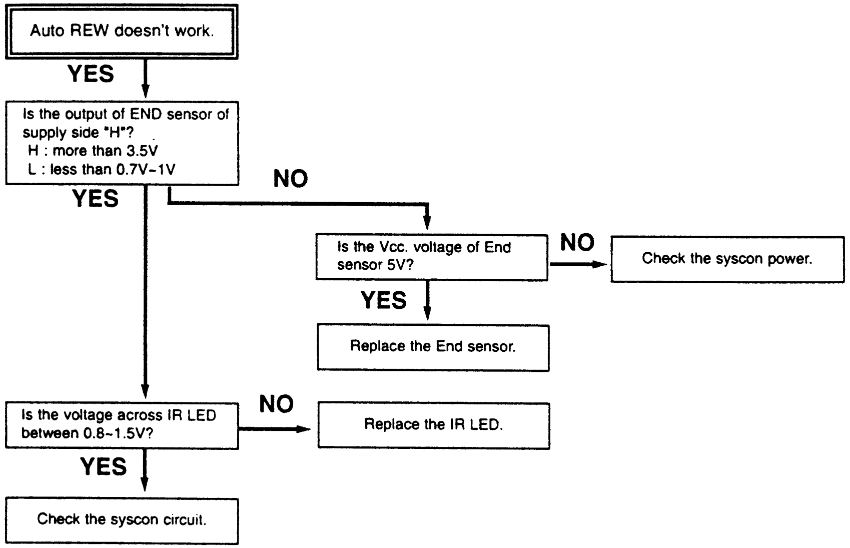
GEAR AY, P2 & P3


Boss
(G-754.Yellow)
Cam
(G-754.Yellow)

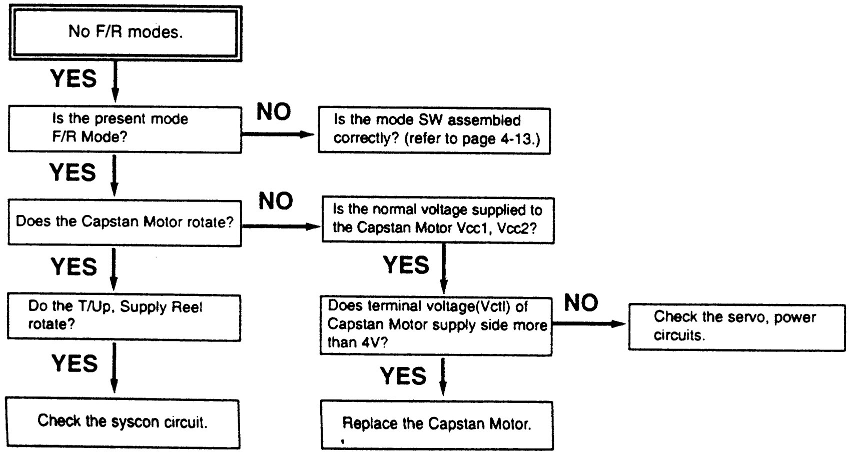
MECHANISM TROUBLESHOOTING GUIDE

1.Deck Mechanism

A.

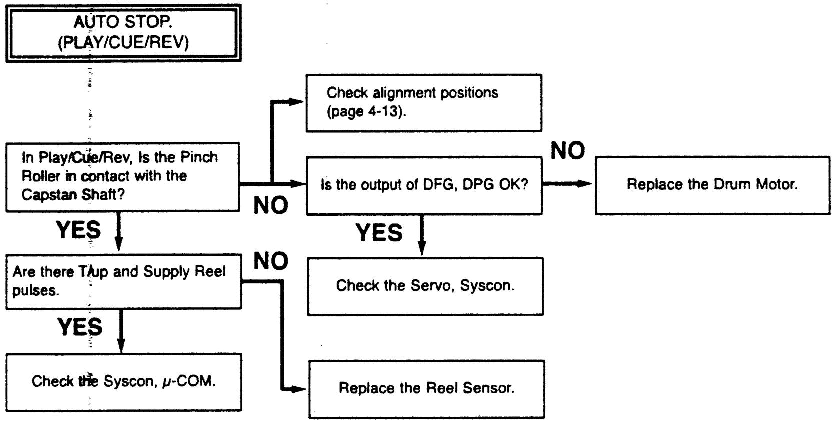

Auto REW doesn't work.
YES
Is the output of END sensor of supply side "H"?
H : more than 3.5V
L : less than 0.7V~1V
NO
YES
Is the Vcc. voltage of End sensor 5V?
NO
Check the syscon power.
YES
Replace the End sensor.
Is the voltage across IR LED between 0.8~1.5V?
NO
Replace the IR LED.
YES
Check the syscon circuit.

B.

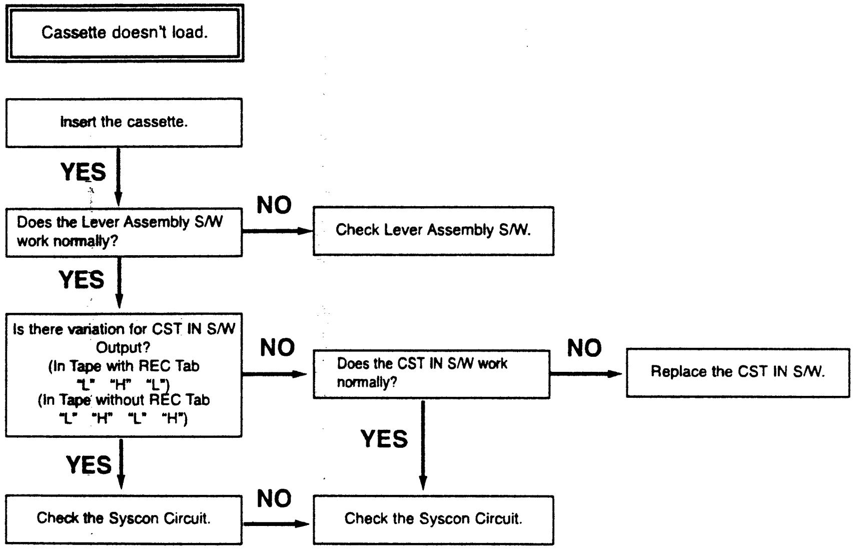

No F/R modes.
YES
Is the present mode F/R Mode?
NO
Is the mode SW assembled correctly? (refer to page 4-13.)
YES
Does the Capstan Motor rotate?
NO
Is the normal voltage supplied to the Capstan Motor Vcc1, Vcc2?
YES
YES
Do the T/Up, Supply Reel rotate?
Does terminal voltage(Vctl) of Capstan Motor supply side more than 4V?
NO
Check the servo, power circuits.
YES
YES
Check the syscon circuit.
Replace the Capstan Motor.

MECHANISM TROUBLESHOOTING GUIDE

C.

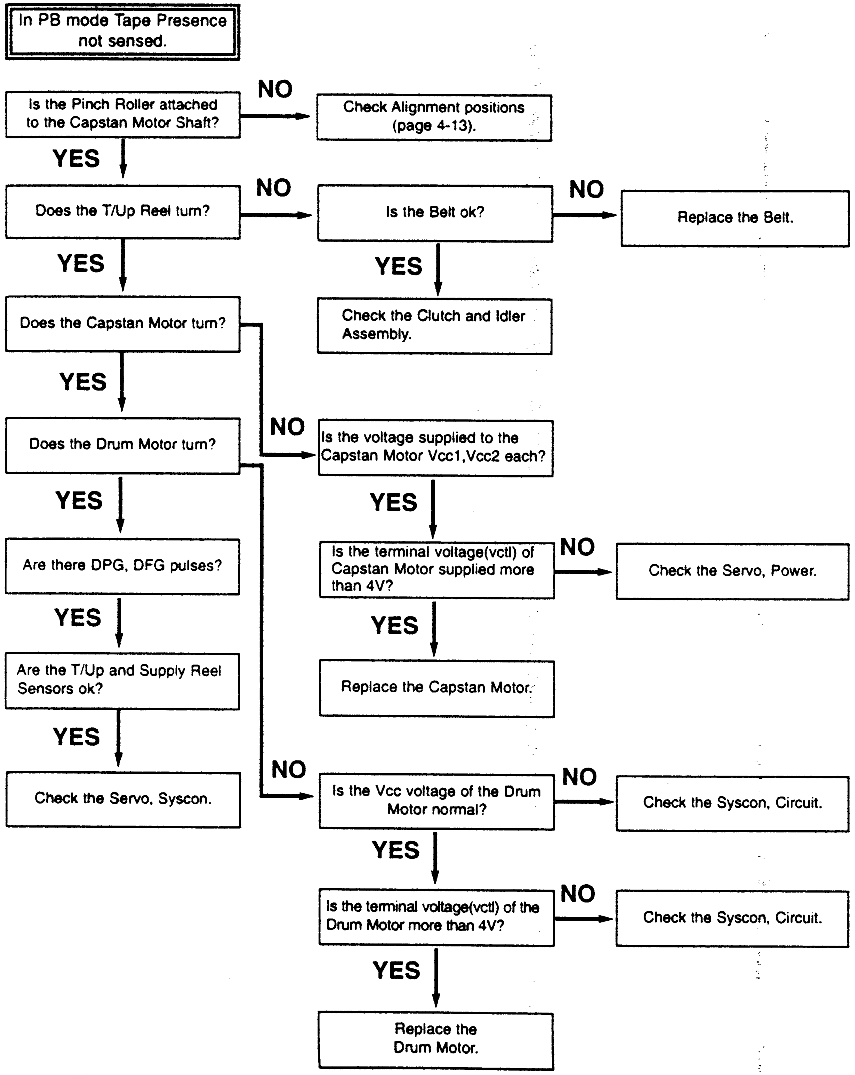

AUTO STOP.
(PLAY/CUE/REV)
Check alignment positions (page 4-13).
In Play/Cue/Rev, Is the Pinch Roller in contact with the Capstan Shaft?
NO
Is the output of DFG, DPG OK?
NO
Replace the Drum Motor.
YES
YES
Are there T/Up and Supply Reel pulses.
NO
Check the Servo, Syscon.
YES
Check the Syscon, µ-COM.
Replace the Reel Sensor.

D.


Cassette doesn't load.
Insert the cassette.
YES
Does the Lever Assembly S/W work normally?
NO
Check Lever Assembly S/W.
YES
Is there variation for CST IN S/W Output?
(In Tape with REC Tab "L" "H" "L")
(In Tape without REC Tab "L" "H" "L" "H")
NO
Does the CST IN S/W work normally?
NO
Replace the CST IN S/W.
YES
YES
Check the Syscon Circuit.
NO
Check the Syscon Circuit.

MECHANISM TROUBLESHOOTING GUIDE

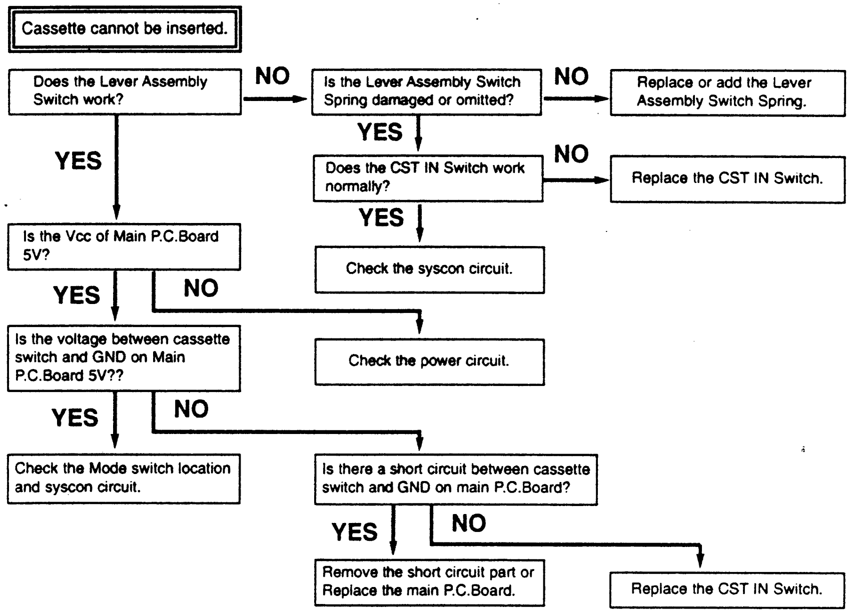
E.


In PB mode Tape Presence not sensed.
Is the Pinch Roller attached to the Capstan Motor Shaft?
NO
Check Alignment positions (page 4-13).
YES
Does the T/Up Reel turn?
NO
Is the Belt ok?
NO
Replace the Belt.
YES
Check the Clutch and Idler Assembly.
YES
Does the Capstan Motor turn?
NO
Is the voltage supplied to the Capstan Motor Vcc1,Vcc2 each?
YES
Is the terminal voltage(vctl) of Capstan Motor supplied more than 4V?
NO
Check the Servo, Power.
YES
Replace the Capstan Motor.
YES
Does the Drum Motor turn?
NO
Is the Vcc voltage of the Drum Motor normal?
NO
Check the Syscon, Circuit.
YES
Is the terminal voltage(vctl) of the Drum Motor more than 4V?
NO
Check the Syscon, Circuit.
YES
Replace the Drum Motor.
YES
Are there DPG, DFG pulses?
YES
Are the T/Up and Supply Reel Sensors ok?
YES
Check the Servo, Syscon.

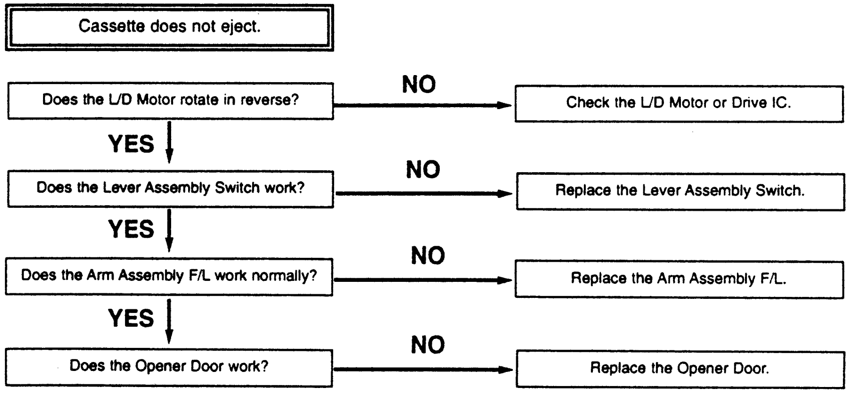
MECHANISM TROUBLESHOOTING GUIDE

2. Front Loading Mechanism

A.

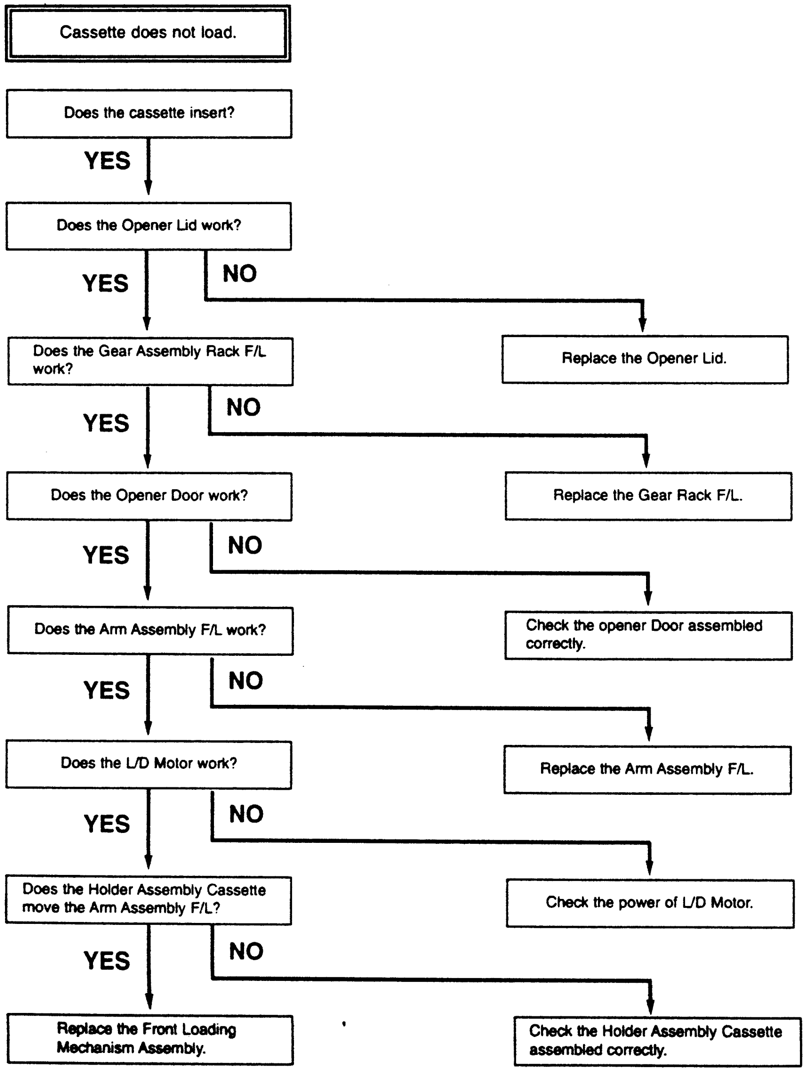

Cassette cannot be inserted.
Does the Lever Assembly Switch work?
NO
Is the Lever Assembly Switch Spring damaged or omitted?
NO
Replace or add the Lever Assembly Switch Spring.
YES
Does the CST IN Switch work normally?
NO
Replace the CST IN Switch.
YES
Check the syscon circuit.
YES
Is the Vcc of Main P.C.Board 5V?
NO
Check the power circuit.
YES
Is the voltage between cassette switch and GND on Main P.C.Board 5V??
NO
Is there a short circuit between cassette switch and GND on main P.C.Board?
YES
Remove the short circuit part or Replace the main P.C.Board.
NO
Replace the CST IN Switch.
YES
Check the Mode switch location and syscon circuit.

B.


Cassette does not eject.
Does the L/D Motor rotate in reverse?
NO
Check the L/D Motor or Drive IC.
YES
Does the Lever Assembly Switch work?
NO
Replace the Lever Assembly Switch.
YES
Does the Arm Assembly F/L work normally?
NO
Replace the Arm Assembly F/L.
YES
Does the Opener Door work?
NO
Replace the Opener Door.

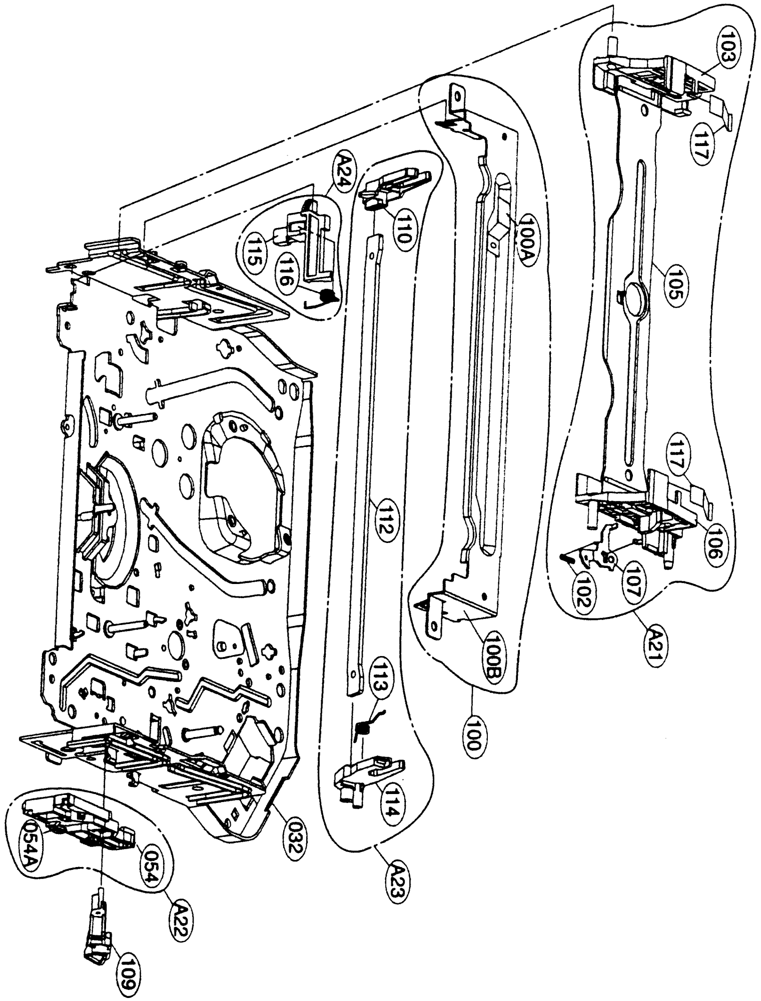
MECHANISM TROUBLESHOOTING GUIDE

C.


Cassette does not load.
Does the cassette insert?
YES
Does the Opener Lid work?
YES
NO
Replace the Opener Lid.
Does the Gear Assembly Rack F/L work?
YES
NO
Replace the Gear Rack F/L.
Does the Opener Door work?
YES
NO
Check the opener Door assembled correctly.
Does the Arm Assembly F/L work?
YES
NO
Replace the Arm Assembly F/L.
Does the L/D Motor work?
YES
NO
Check the power of L/D Motor.
Does the Holder Assembly Cassette move the Arm Assembly F/L?
YES
NO
Check the Holder Assembly Cassette assembled correctly.
Replace the Front Loading Mechanism Assembly.

EXPLODED VIEWS

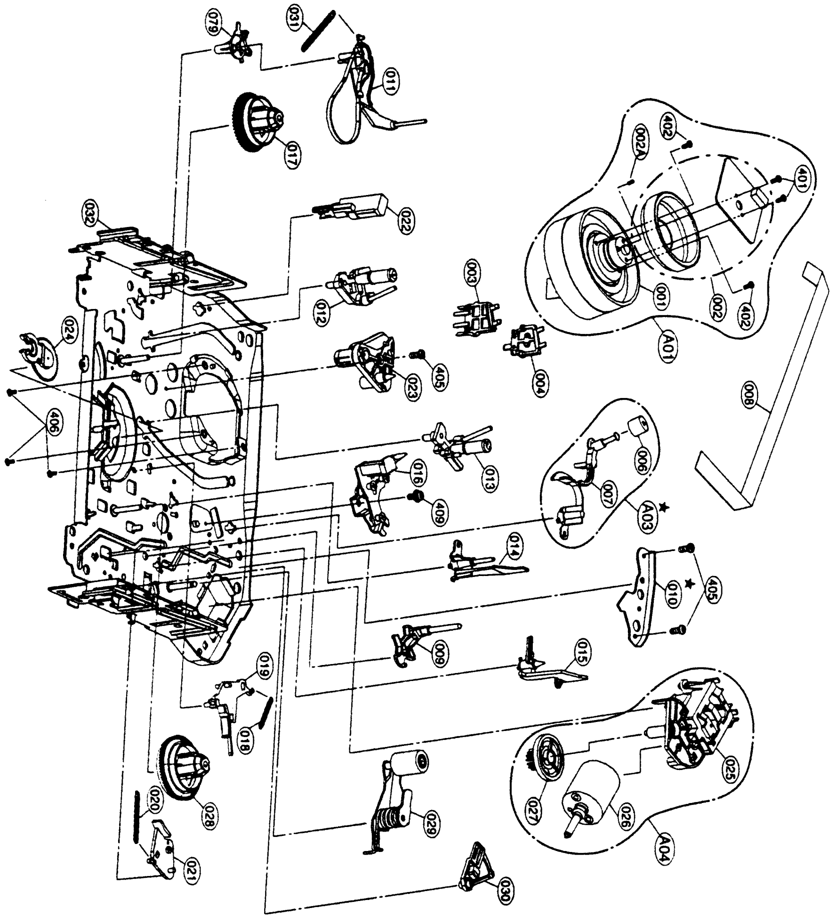
1. Front Loading Mechanism Section


103
117
105
117
106
107
102
A21
100A
100B
100
A24
110
115
116
112
113
114
A23
032
054A
054
A22
109

EXPLODED VIEWS

2. Moving Mechanism Section(1)

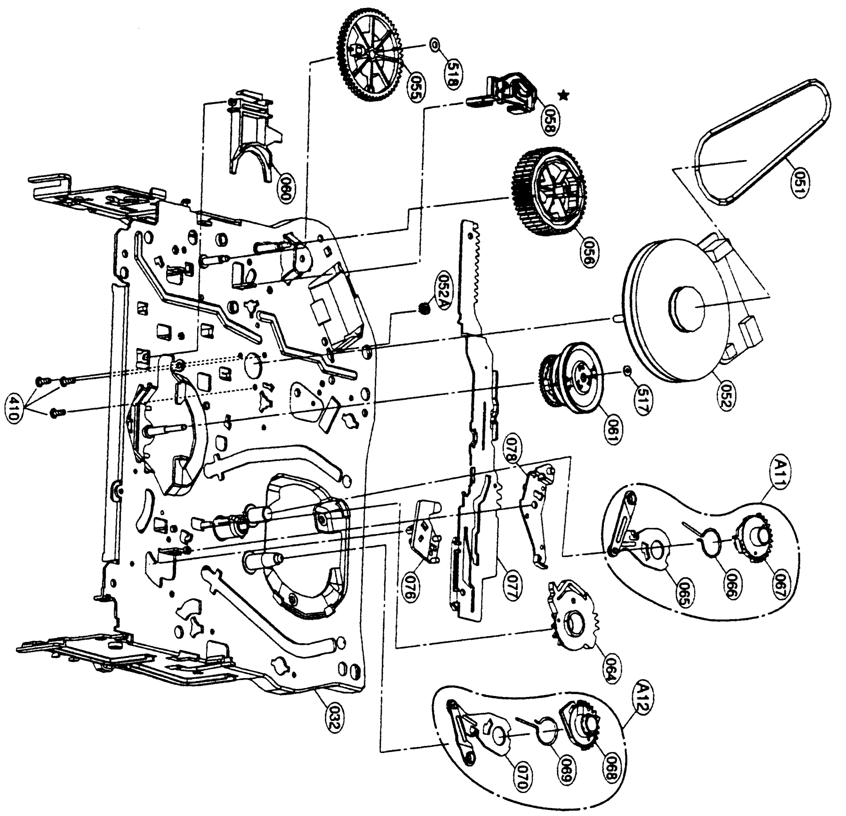
★ OPTIONAL PART


079
031
011
017
402
002A
401
022
032
003
012
001
002
402
024
405
023
004
A01
406
008
016
013
006
409
007
A03
★
014
405
★
010
019
009
015
018
025
028
020
029
027
026
A04
021
030

EXPLODED VIEWS

3. Moving Mechanism Section(2)

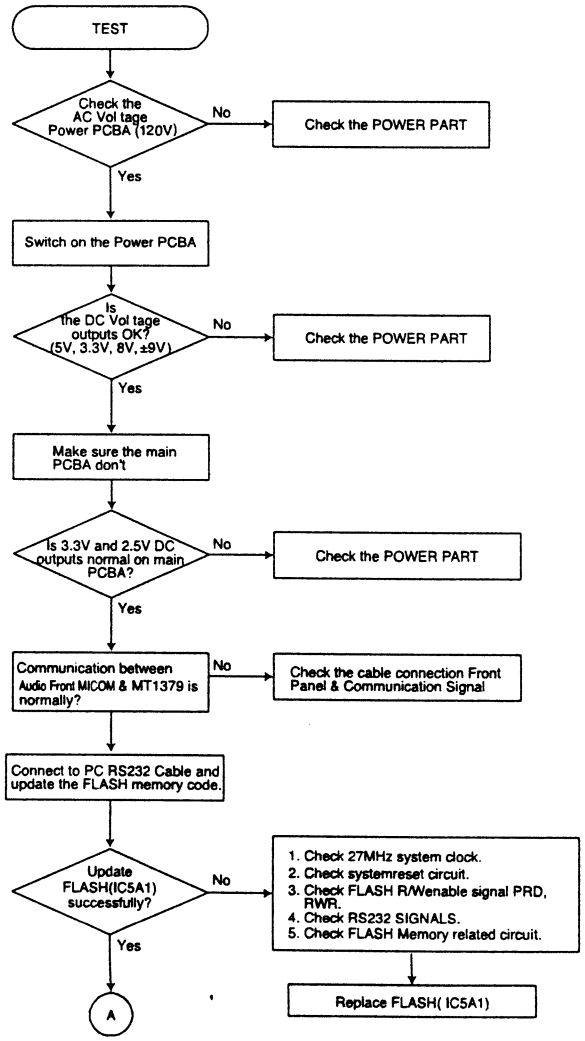
★ OPTIONAL PART

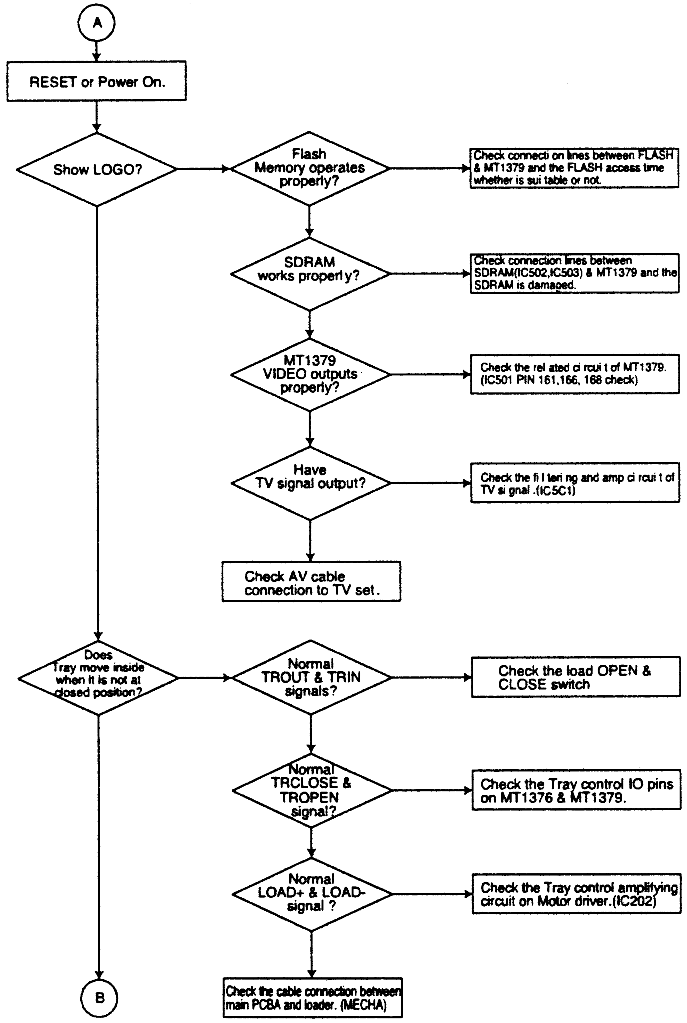

055
518
058
★
060
051
056
052A
410
061
517
052
078
A11
076
077
065
066
067
064
032
A12
070
069
068

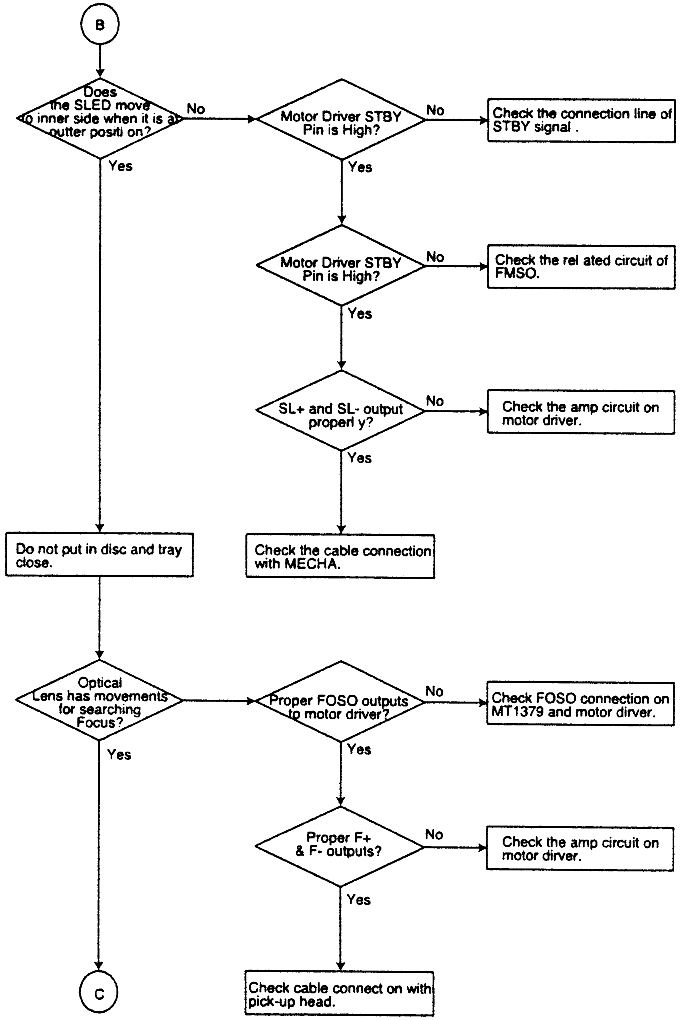
SECTION 5. DVD PART

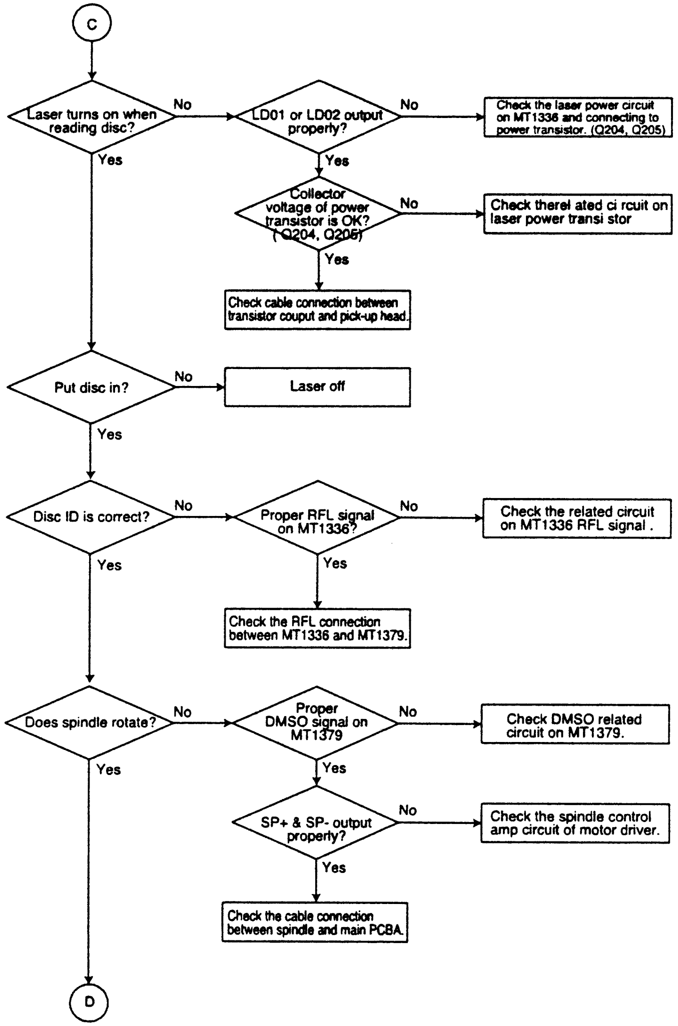
DVD ELECTRICAL TROUBLESHOOTING

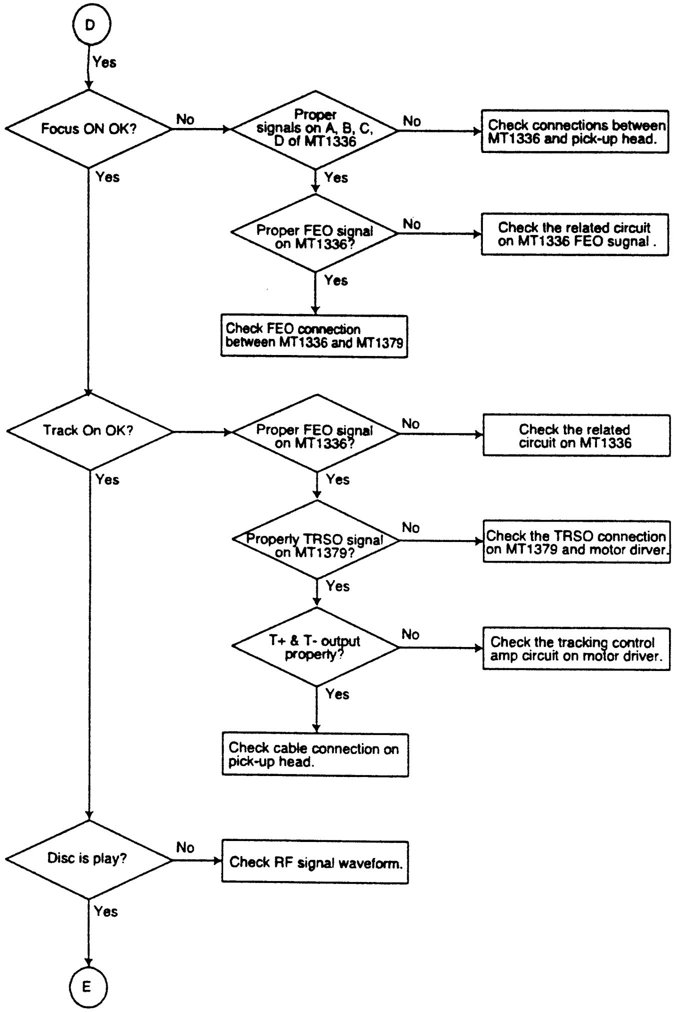
1. Test & debug flow

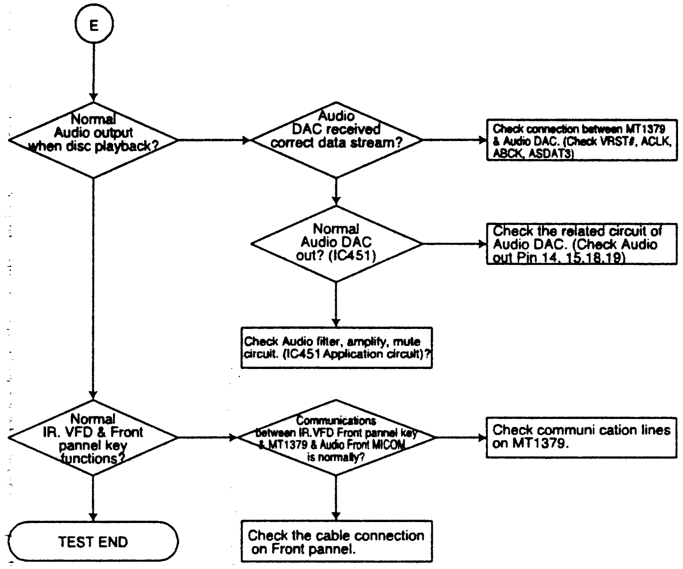

TEST
Check the AC Vol tage Power PCBA (120V)
No
Check the POWER PART
Yes
Switch on the Power PCBA
Is the DC Vol tage outputs OK? (5V, 3.3V, 8V, ±9V)
No
Check the POWER PART
Yes
Make sure the main PCBA don't
Is 3.3V and 2.5V DC outputs normal on main PCBA?
No
Check the POWER PART
Yes
Communication between Audio Front MICOM & MT1379 is normally?
No
Check the cable connection Front Panel & Communication Signal
Connect to PC RS232 Cable and update the FLASH memory code.
Update FLASH(IC5A1) successfully?
No
1. Check 27MHz system clock.
2. Check systemreset circuit.
3. Check FLASH R/Wenable signal PRD, RWR.
4. Check RS232 SIGNALS.
5. Check FLASH Memory related circuit.
Replace FLASH(IC5A1)
Yes
A


A
RESET or Power On.
Show LOGO?
Flash Memory operates properly?
Check connection lines between FLASH & MT1379 and the FLASH access time whether is suitable or not.
SDRAM works properly?
Check connection lines between SDRAM(IC502,IC503) & MT1379 and the SDRAM is damaged.
MT1379 VIDEO outputs properly?
Check the related circuit of MT1379. (IC501 PIN 161,166, 168 check)
Have TV signal output?
Check the filtering and amp circuit of TV signal .(IC5C1)
Check AV cable connection to TV set.
Does Tray move inside when It is not at closed position?
Normal TROUT & TRIN signals?
Check the load OPEN & CLOSE switch
Normal TRCLOSE & TROPEN signal?
Check the Tray control IO pins on MT1376 & MT1379.
Normal LOAD+ & LOAD- signal ?
Check the Tray control amplifying circuit on Motor driver.(IC202)
Check the cable connection between main PCBA and loader. (MECHA)
B


B
Does the SLED move to inner side when it is at outter position?
No
Yes
Motor Driver STBY Pin is High?
No
Yes
Check the connection line of STBY signal .
Motor Driver STBY Pin is High?
No
Yes
Check the related circuit of FMSO.
SL+ and SL- output properl y?
No
Yes
Check the amp circuit on motor driver.
Check the cable connection with MECHA.
Do not put in disc and tray close.
Optical Lens has movements for searching Focus?
Yes
Proper FOSO outputs to motor driver?
No
Yes
Check FOSO connection on MT1379 and motor dirver.
Proper F+ & F- outputs?
No
Yes
Check the amp circuit on motor dirver.
Check cable connection with pick-up head.
C


C
Laser turns on when reading disc?
No
Yes
LD01 or LD02 output properly?
No
Yes
Check the laser power circuit on MT1336 and connecting to power transistor. (Q204, Q205)
Collector voltage of power transistor is OK? (Q204, Q205)
No
Yes
Check therelated circuit on laser power transistor
Check cable connection between transistor couput and pick-up head.
Put disc in?
No
Yes
Laser off
Disc ID is correct?
No
Yes
Proper RFL signal on MT1336?
No
Yes
Check the related circuit on MT1336 RFL signal .
Check the RFL connection between MT1336 and MT1379.
Does spindle rotate?
No
Yes
Proper DMSO signal on MT1379
No
Yes
Check DMSO related circuit on MT1379.
SP+ & SP- output properly?
No
Yes
Check the spindle control amp circuit of motor driver.
Check the cable connection between spindle and main PCBA.
D


D
Yes
Focus ON OK?
No
Proper signals on A, B, C, D of MT1336
No
Check connections between MT1336 and pick-up head.
Yes
Yes
Proper FEO signal on MT1336?
No
Check the related circuit on MT1336 FEO sugnal .
Yes
Check FEO connection between MT1336 and MT1379
Track On OK?
Proper FEO signal on MT1336?
No
Check the related circuit on MT1336
Yes
Yes
Properly TRSO signal on MT1379?
No
Check the TRSO connection on MT1379 and motor dirver.
Yes
T+ & T- output properly?
No
Check the tracking control amp circuit on motor driver.
Yes
Check cable connection on pick-up head.
Disc is play?
No
Check RF signal waveform.
Yes
E


E
Normal Audio output when disc playback?
Audio DAC received correct data stream?
Check connection between MT1379 & Audio DAC. (Check VRST#, ACLK, ABCK, ASDAT3)
Normal Audio DAC out? (IC451)
Check the related circuit of Audio DAC. (Check Audio out Pin 14, 15,18,19)
Check Audio filter, amplify, mute circuit. (IC451 Application circuit)?
Normal IR. VFD & Front pannel key functions?
Communications between IR.VFD Front pannel key & MT1379 & Audio Front MICOM is normally?
Check communi cation lines on MT1379.
Check the cable connection on Front pannel.
TEST END

DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

1. SYSTEM 27MHz CLOCK,RESET,FLASH R/W SIGNAL

1) MT1379 main clock is at 27MHz(X501)

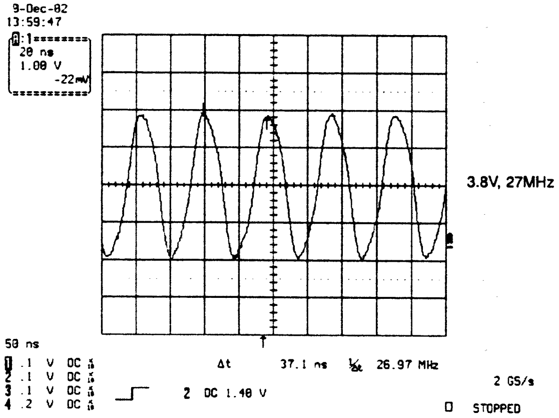


FIG 1-1

2) MT1336 reset is high active

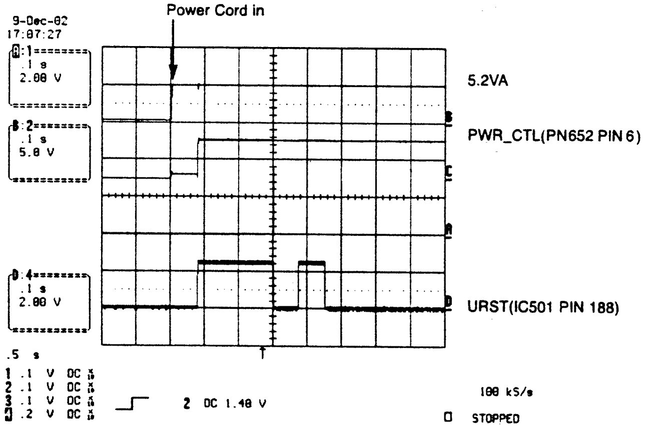


FIG 1-2

3) RS232 waveform during procedure(Downloading)

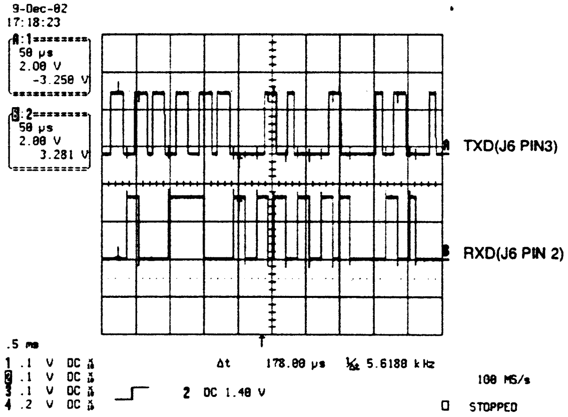


FIG 1-3

4) Flash R/W enable signal during download(Downloading)

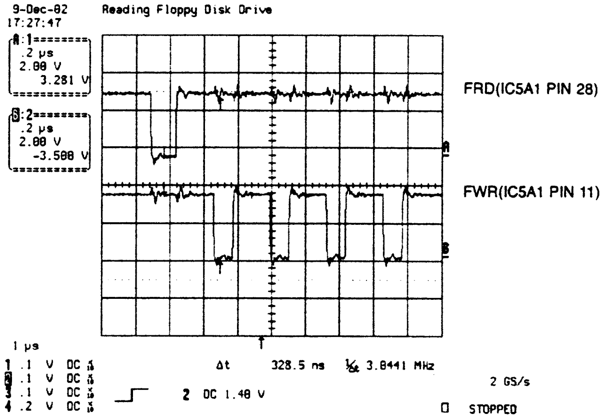


FIG 1-4

2. SDRAM CLOCK

1) MT1379 main clock is at 27MHz(X501)

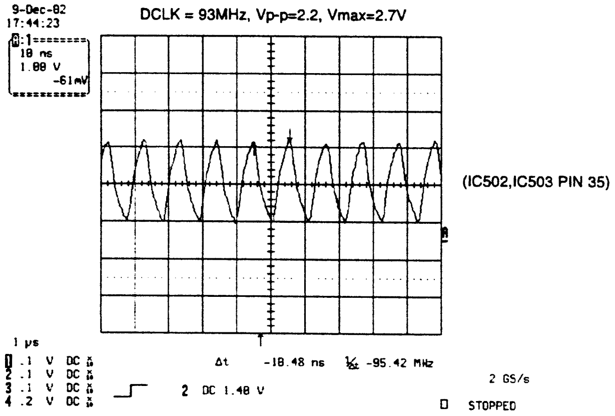

DCLK = 93MHz, Vp-p=2.2, Vmax=2.7V

FIG 2-1

3. TRAY OPEN/CLOSE SIGNAL

1) Tray open/close waveform

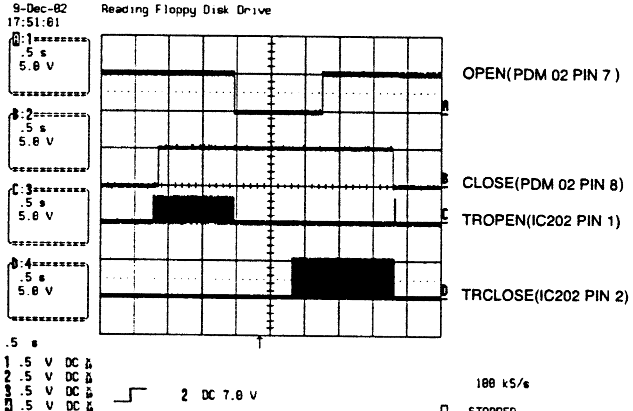


FIG 3-1

2) Tray close waveform

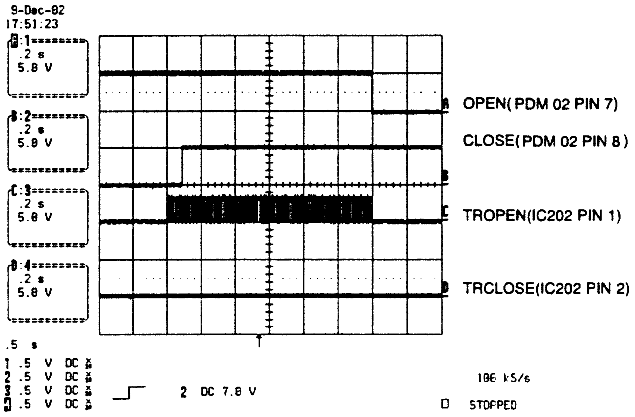


FIG 3-2

3) Tray open waveform

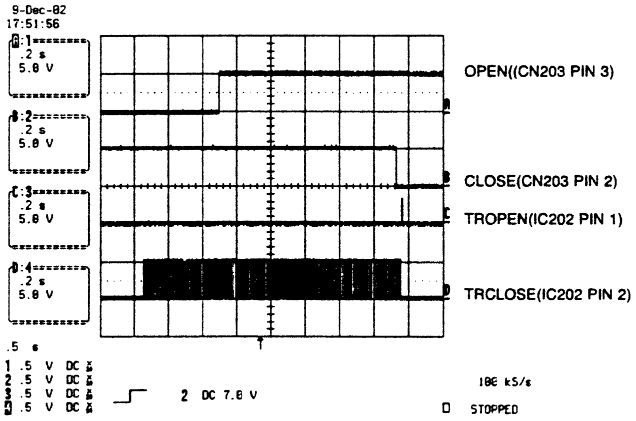


FIG 3-3

4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)

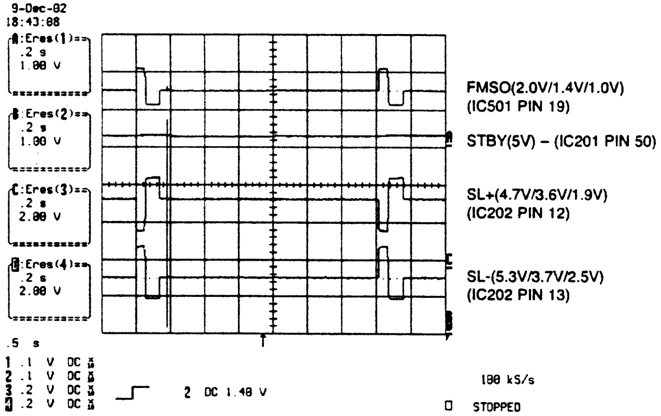


FIG 4-1

5. LENS CONTROL RELATED SIGNAL(NO DISC CONDITION)

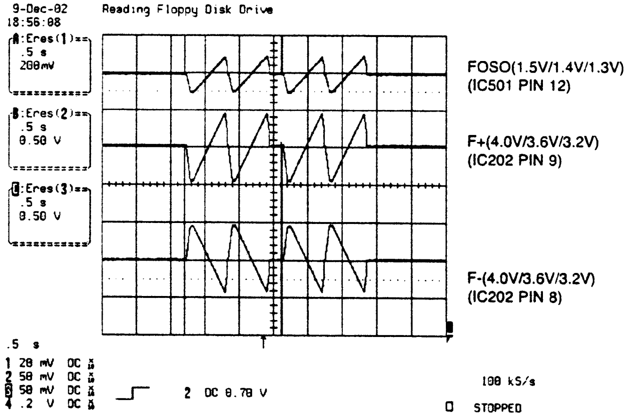


FIG 5-1

6. LASER POWER CONTROL RELATED SIGNAL (NO DISC CONDITION)

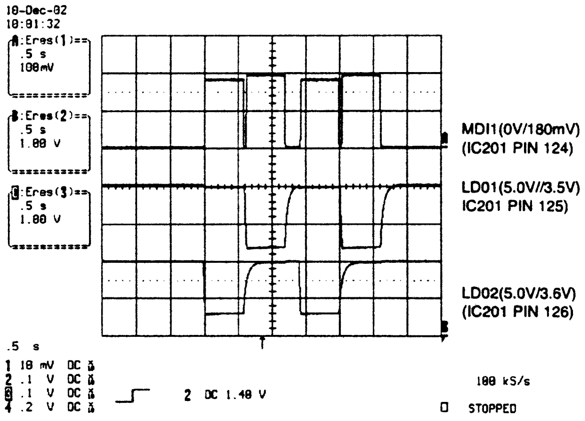


FIG 6-1

7. DISC TYPE JUDGEMENT WAVEFORM

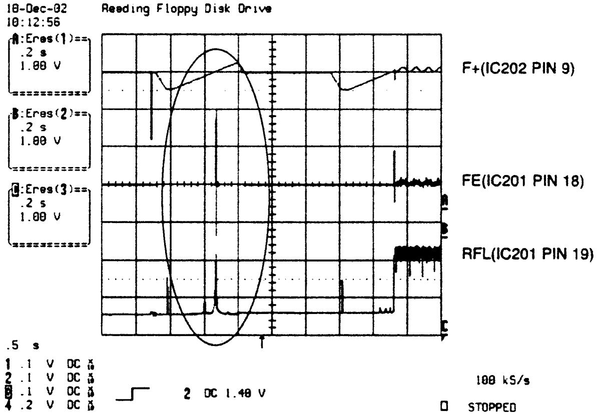


FIG 7-1 (DVD)

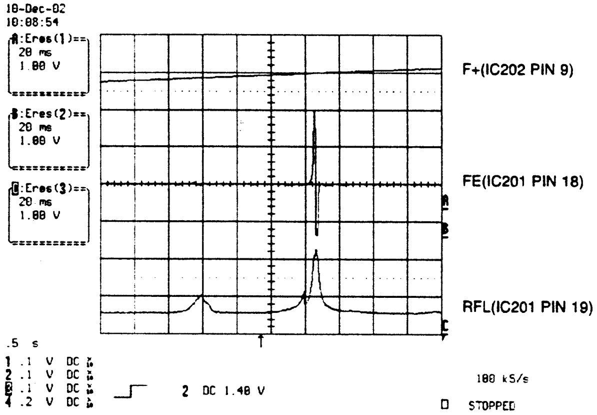


FIG 7-2 (DVD)

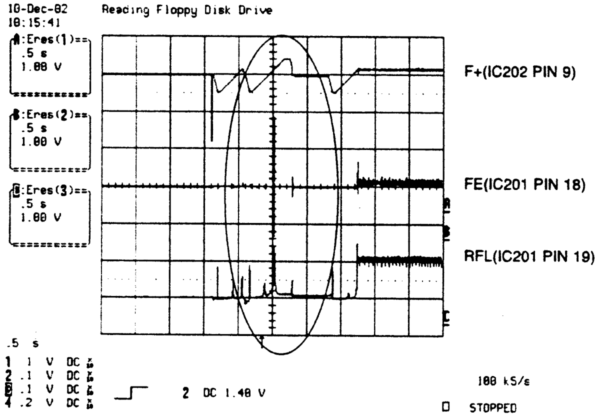


FIG 7-3 (CD)

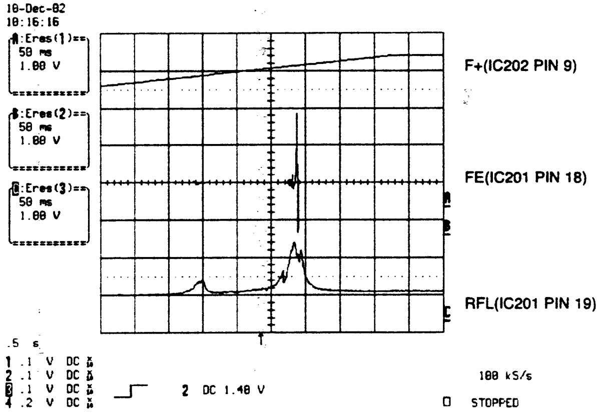


FIG 7-4 (CD)

8. FOCUS ON WAVEFORM

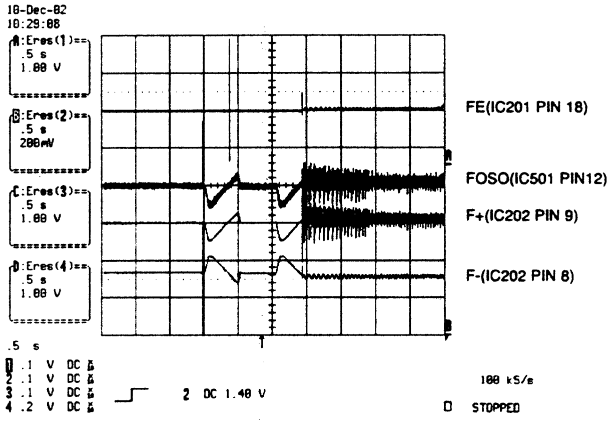


FIG 8-1 (DVD)

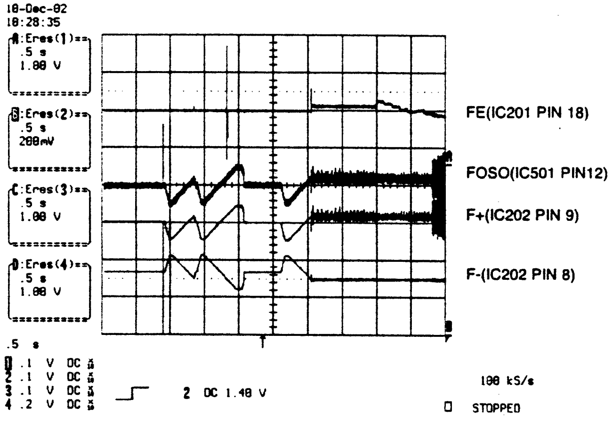


FIG 8-2 (CD)

9. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)

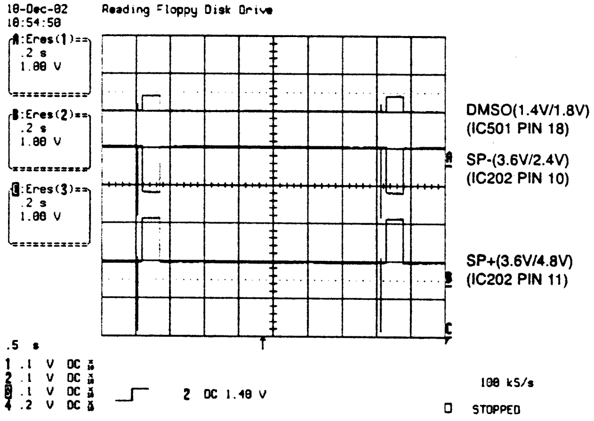


FIG 9-1

10. TRACKING CONTROL RELATED SIGNAL(System checking)

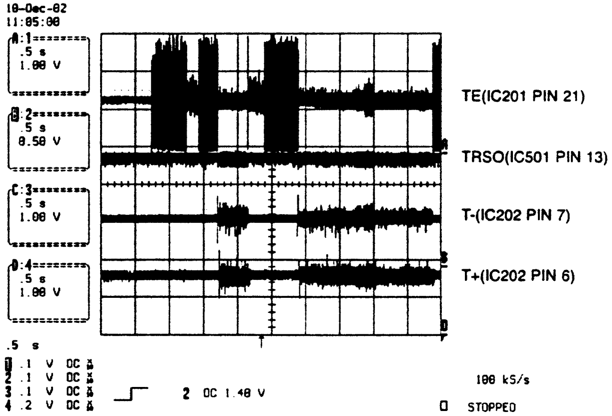


FIG 10-1(DVD)

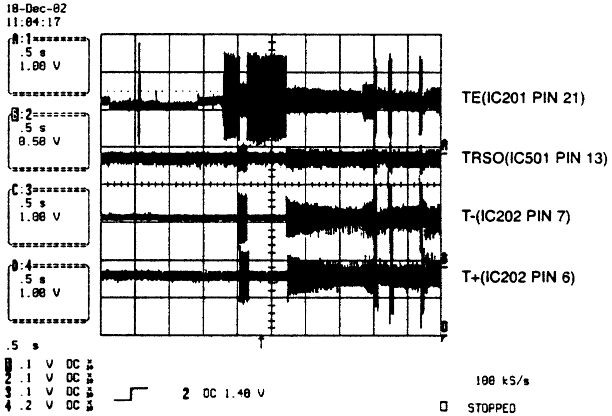
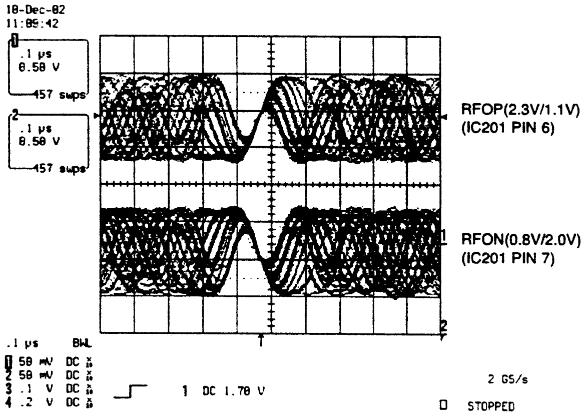


FIG 10-2(CD)

11. RF WAVEFORM

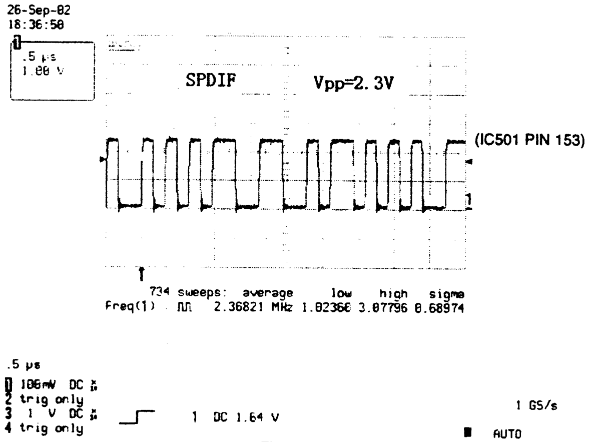


RFOP(2.3V/1.1V)
(IC201 PIN 6)

RFON(0.8V/2.0V)
(IC201 PIN 7)

FIG 11-1

12. MT1379 AUDIO OPTICAL AND COAXIAL OUTPUT (ASPDIF)



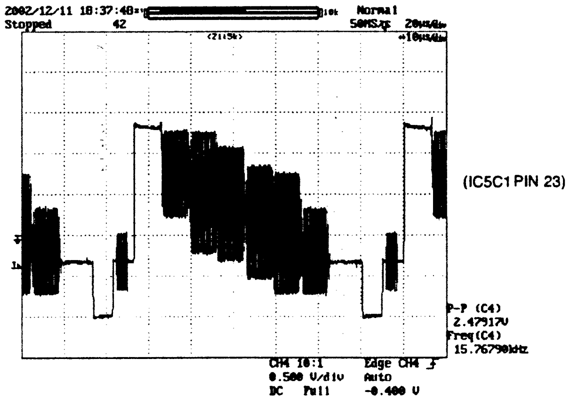
(IC501 PIN 153)

FIG 12-1

13. MT1379 VIDEO OUTPUT WAVEFORM

1) Full colorbar signal(CVBS)

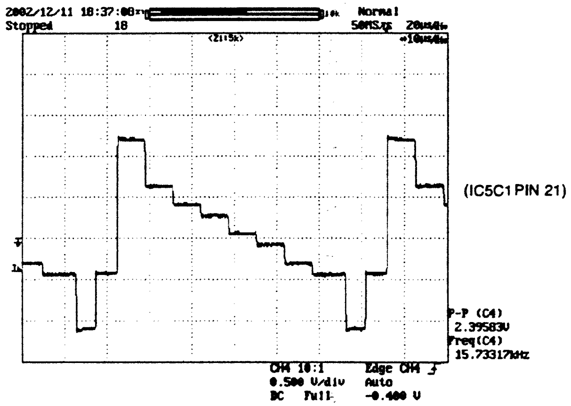
DCLK = 93MHz, Vp-p=2.2, Vmax=2.7V



(IC5C1 PIN 23)

FIG 13-1

2) Y



(IC5C1 PIN 21)

FIG 13-2

3) C

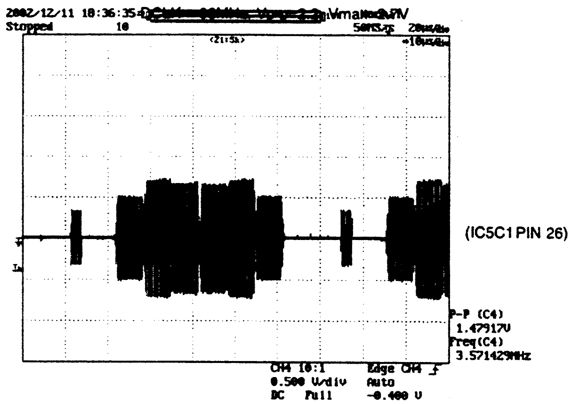


FIG 13-3

14. AUDIO OUTPUT FORM AUDIO DAC

1) Audio related Signal

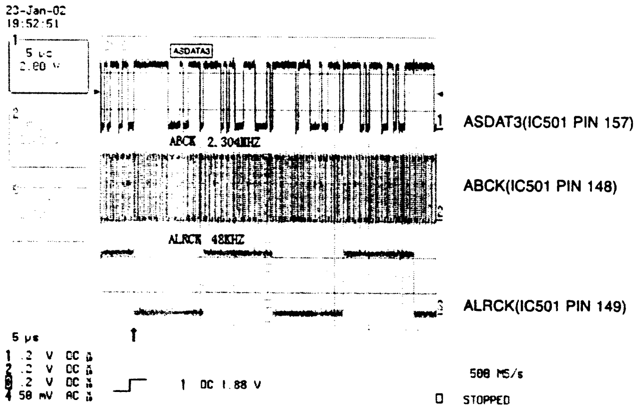
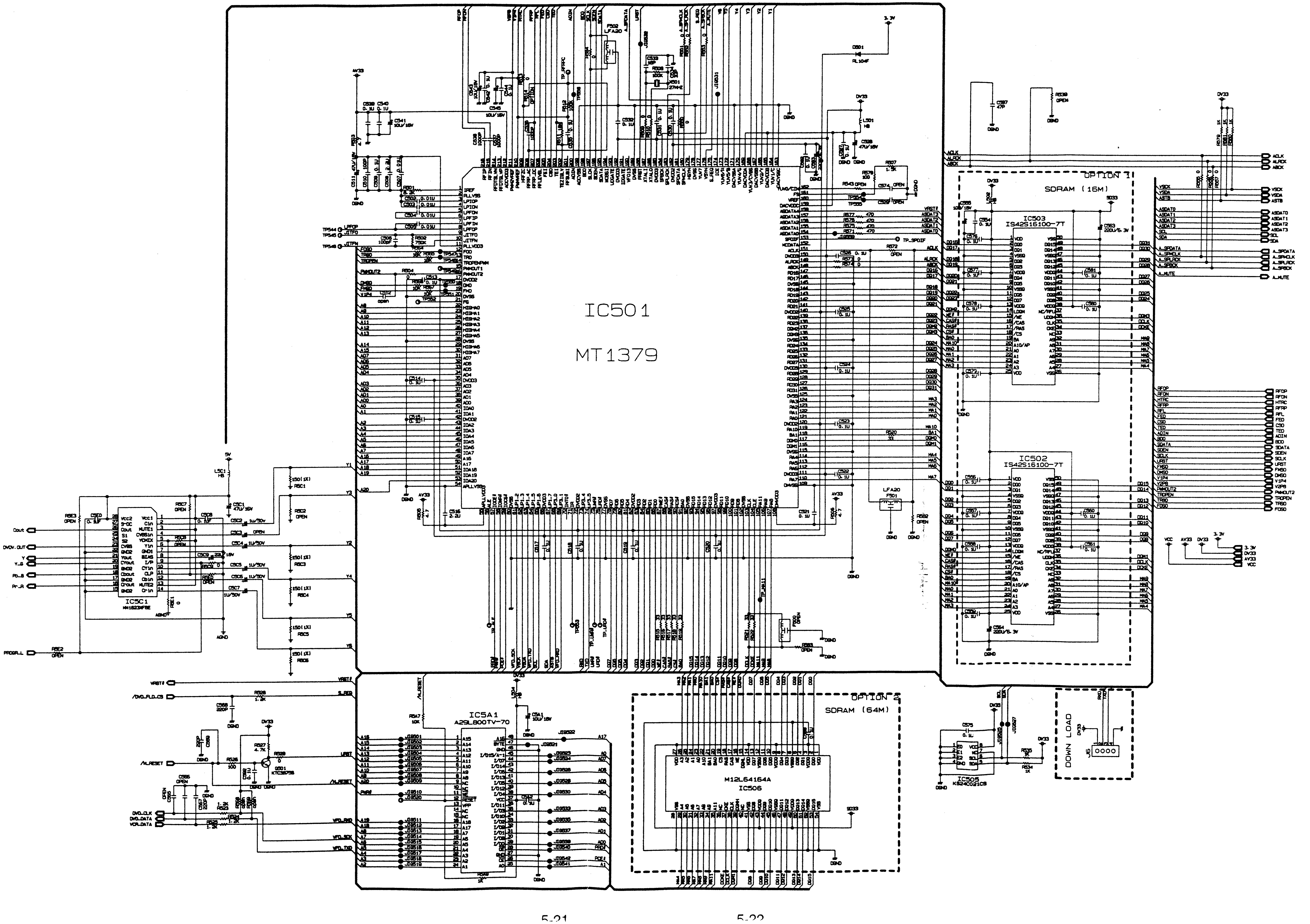


FIG 14-1

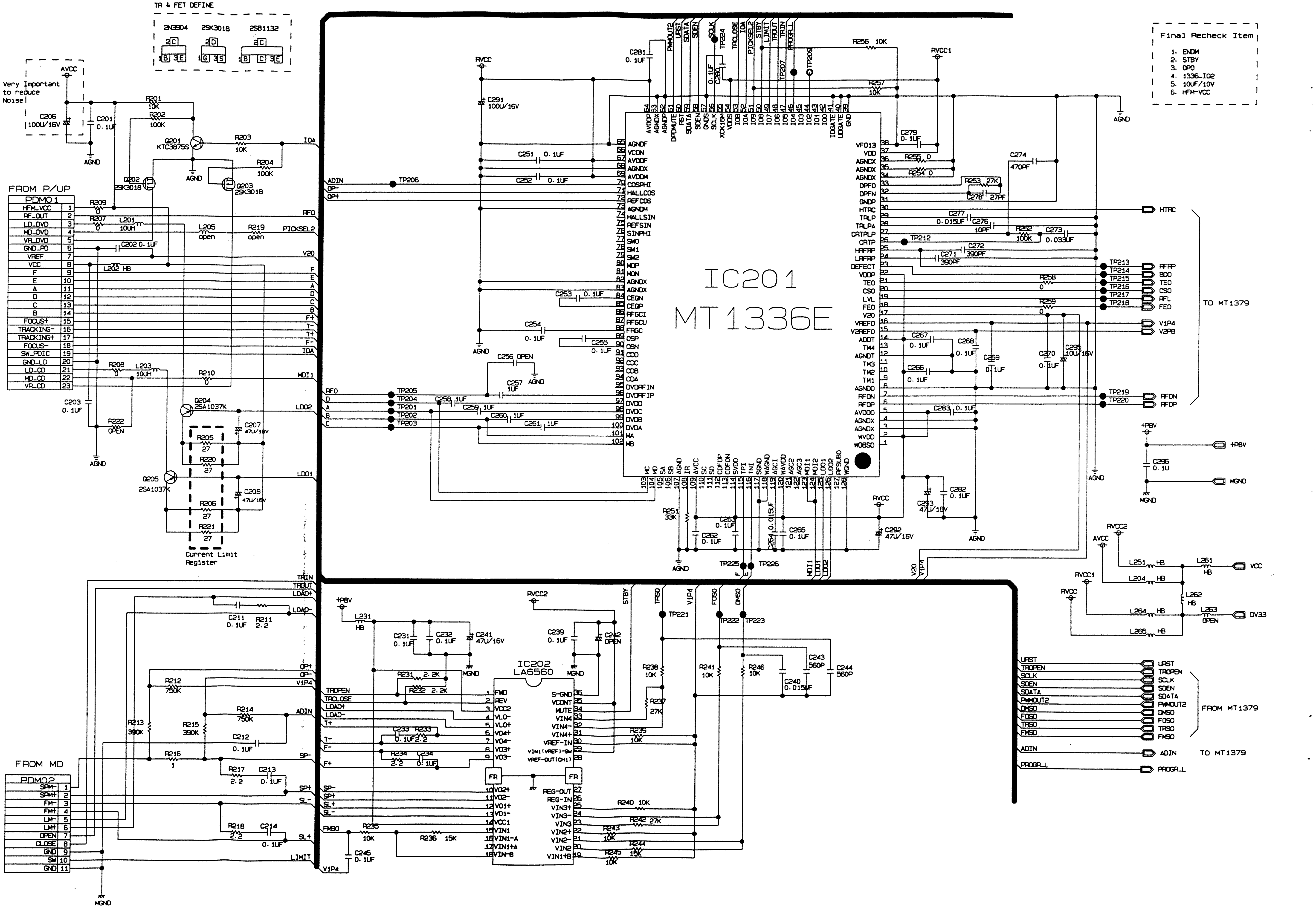
MEMO

DVD PART SCHEMATIC DIAGRAMS

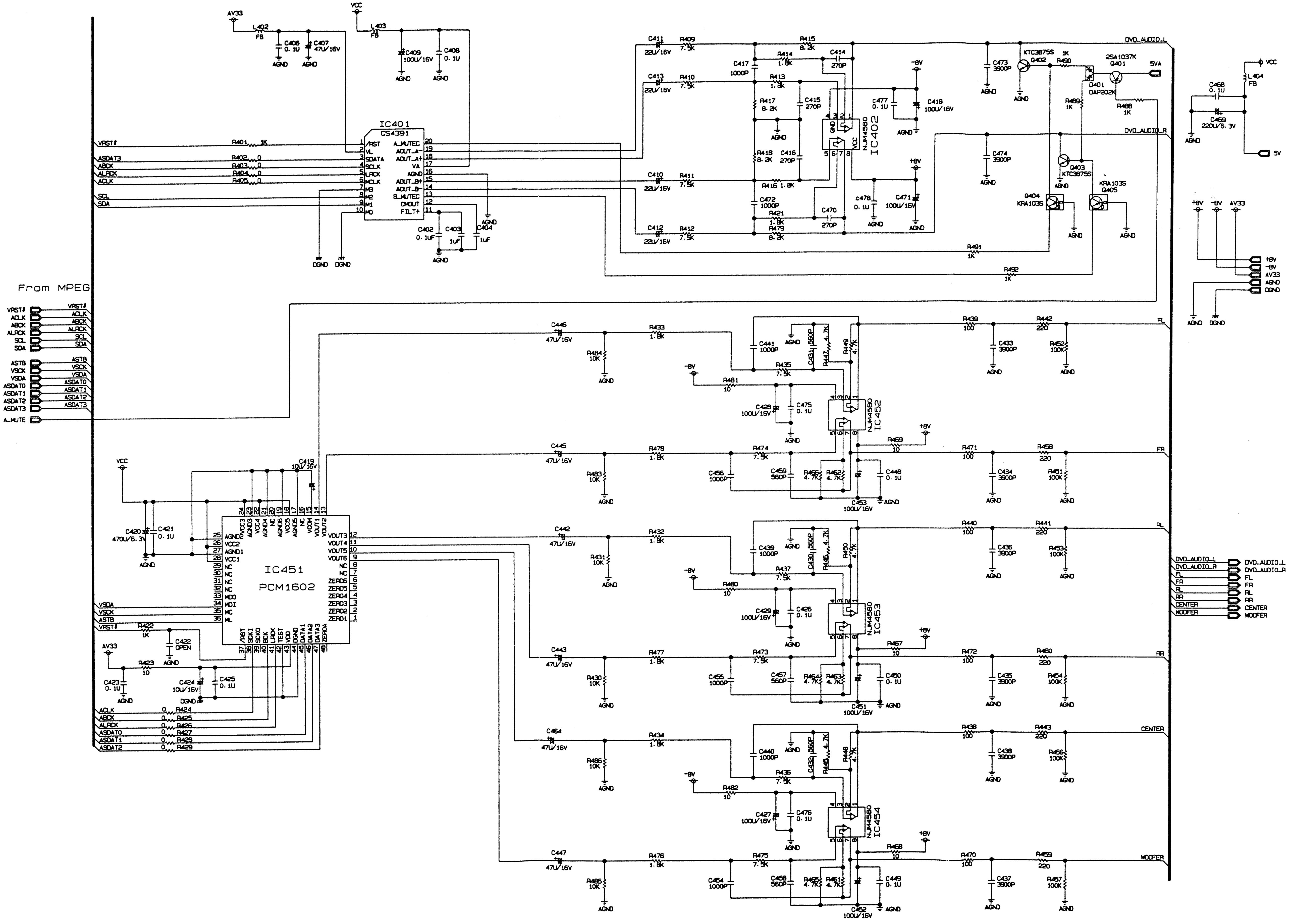
• MPEG SCHEMATIC DIAGRAM


IC501
MT1379
IC5C1
MH1623HFBE
IC5A1
A29L800TV-70
OPTION 1
SDRAM (16M)
IC503
IS42S16100-7T
IC502
IS42S16100-7T
OPTION 2
SDRAM (64M)
M12L64164A
IC506
IC505
KS24C021CS
DOWN LOAD
J6
3.3V
DV33
AV33
DGND
AGND
VCC
5V
Cout
DVDV_OUT
Y
Y_S
Pb_B
Pr_R
PROSR_L
VRST#
/DVD_FLD_CS
/M_RESET
DVD_CLK
DVD_DATA
VCR_DATA
ACLK
ALRCK
ABCK
VSCK
VSDA
ASTB
ASDAT0
ASDAT1
ASDAT2
ASDAT3
SCL
SDA
A_SPDATA
A_SPMCLK
A_SPLRCK
A_SPBCK
A_MUTE
RFOP
RFON
HTRC
RFPP
RFL
FED
TED
CSO
ADIN
BDO
SDATA
SDEN
SCLK
URST
FMSO
DMSO
V1P4
V2P8
PWMOUT2
TROPEN
TRSO
FOSO

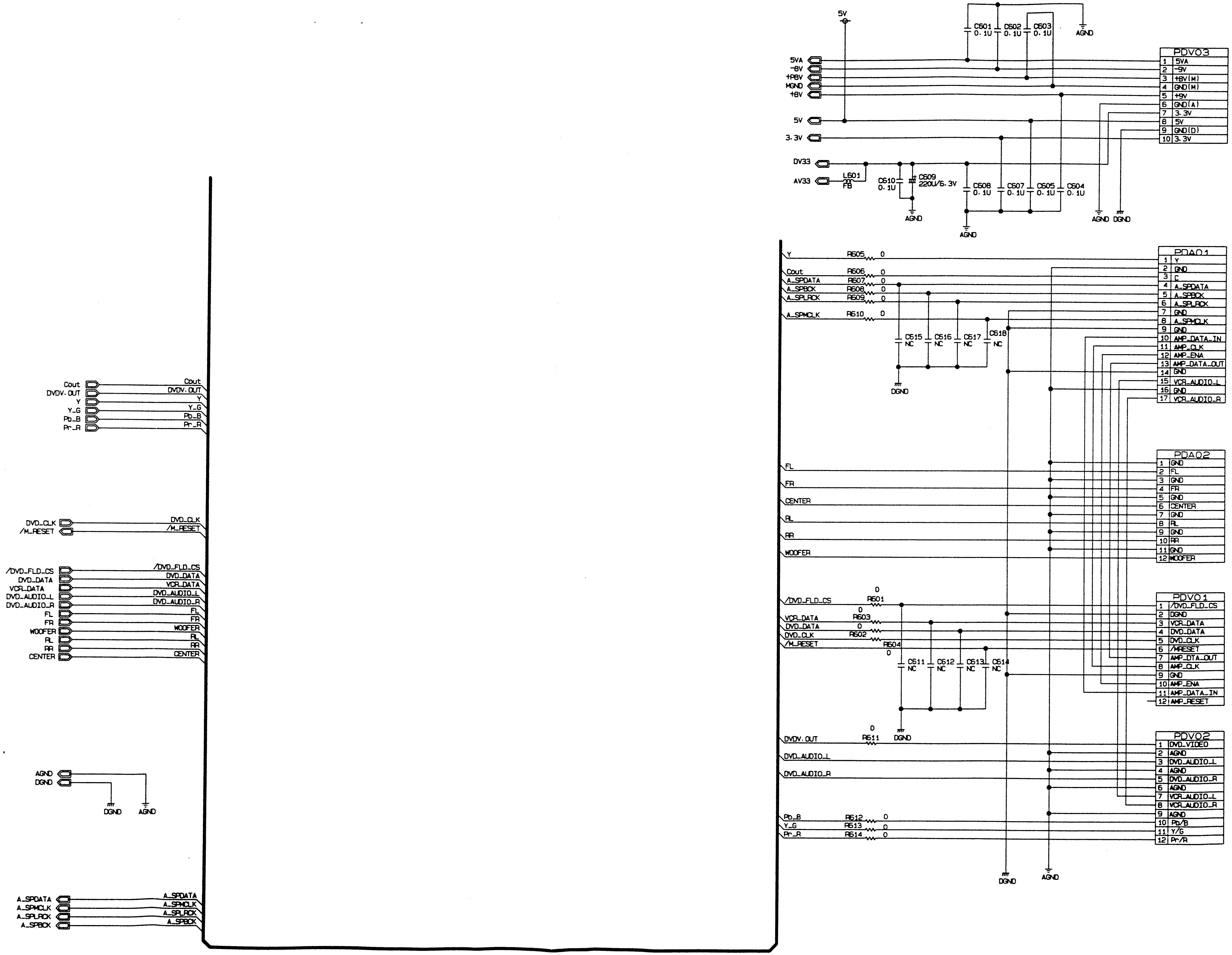
• SERVO SCHEMATIC DIAGRAM


TR & FET DEFINE
2N3904
2SK3018
2SB1132
Very Important to reduce Noise
AVCC
C206 100U/16V
C201 0.1UF
AGND
R201 10K
R202 100K
Q201 KTC3875S
R203 10K
IOA
R204 100K
Q202 2SK3018
Q203 2SK3018
FROM P/UP
PDM01
HFM_VCC
RF_OUT
LD_DVD
MD_DVD
VR_DVD
GND_PD
VREF
VCC
F
E
A
D
C
B
FOCUS+
TRACKING-
TRACKING+
FOCUS-
SW_PDIC
GND_LD
LD_CD
MD_CD
VR_CD
R209 0
R207 0
L201 10UH
L205 open
R219 open
PICKSEL2
C202 0.1UF
V20
L202 HB
R208 0
L203 10UH
R210
MDI1
C203 0.1UF
R222 OPEN
Q204 2SA1037K
LDO2
C207 47U/16V
R205 27
R220 27
Q205 2SA1037K
LDO1
C208 47U/16V
R206 27
R221 27
Current Limit Register
RFO
ADIN
OP-
OP+
TP206
TP205
TP204
TP201
TP202
TP203
RVCC
C291 100U/16V
C251 0.1UF
C252 0.1UF
C253 0.1UF
C254 0.1UF
C255 0.1UF
C256 OPEN
C257 1UF
C258 .1UF
C259 .1UF
C260 .1UF
C261 .1UF
C281 0.1UF
C280 0.1UF
TP224
TP207
TP209
PWMOUT2
URST
SDATA
SDEN
SCLK
TRCLOSE
IOA
PICKSEL2
STBY
LIMIT
TROUT
TRIN
PROGR_L
R256 10K
R257 10K
RVCC1
C279 0.1UF
R255 0
R254 0
C274 470PF
R253 27K
C278 27PF
C277 0.015UF
C276 10PF
R252 100K
C273 0.033UF
TP212
C271 390PF
C272 390PF
IC201
MT1336E
AGNDF
VCON
AVDDF
AGNDX
AVDDM
COSPHI
HALLCOS
REFCOS
AGNDM
HALLSIN
REFSIN
SINPHI
SW0
SW1
SW2
MOP
MON
AGNDX
AGNDX
CEON
CEOP
FRGCI
RFGCU
FRGC
OSP
OSN
CDD
CDC
CDB
CDA
DVDRFIN
DVDRFIP
DVDD
DVDC
DVDB
DVDA
MA
MB
VFO13
VDD
AGNCX
AGNDX
AGNDX
DPFO
DPFN
GNDP
HTRC
TRLP
TRLPA
CRTPLP
CRTP
HRFRP
LRFRP
DEFECT
VDDP
TEO
CSO
LVL
FEO
V20
VREFO
V2REFO
ADOT
TM4
AGNDT
TM3
TM2
TM1
AGNDO
RFON
RFOP
AVDDO
AGNDX
AGNDX
WVDD
WOBSO
AVDDP
AGNDX
AGNDP
DPDMUTE
RST
SDATA
SDEN
GNDS
SCLK
XCK16M
VDDS
IOA
IO8
IO9
IO7
IO6
IO5
IO4
IO3
IO2
IO1
IO0
IODGATE
UDGATE
GND
MC
MD
SA
SB
AGND
IR
AVCC
SC
SD
CDFOP
CDFON
SVDD
TPI
TNI
SGND
WAGND
AGCI
WAVDD
AGC2
AGC3
MDI1
LDO1
LDO2
RFSUBO
WGND
R251 33K
C263 0.1UF
C262 0.1UF
C264 0.015UF
C265 0.1UF
TP225
TP226
MDI1
LDO1
LDO2
C292 47U/16V
C293 47U/16V
C282 0.1UF
C267 0.1UF
C268 0.1UF
C266 0.1UF
C269 0.1UF
C270 0.1UF
C295 10U/16V
C283 0.1UF
R258 0
R259 0
HTRC
TP213
TP214
TP215
TP216
TP217
TP218
RFRP
BDO
TEO
CSO
RFL
FEO
V1P4
V2P8
TO MT1379
TP219
TP220
RFON
RFOP
+P8V
C296 0.1U
MGND
Final Recheck Item
1. ENDM
2. STBY
3. DPO
4. 1336_IO2
5. 10UF/10V
6. HFM-VCC
RVCC2
AVCC
L251 HB
L261 HB
VCC
RVCC1
L204 HB
L262 HB
RVCC
L264 HB
L263 OPEN
DV33
L265 HB
V20
V1P4
TRIN
TROUT
LOAD+
LOAD-
C211 0.1UF
R211 2.2
V1P4
R212 750K
R214 750K
R213 390K
R215 390K
C212 0.1UF
R216 1
SP-
R217 2.2
C213 0.1UF
SP+
SL-
R218 2.2
C214 0.1UF
SL+
LIMIT
FROM MD
PDM02
SPM-
SPM+
FM-
FM+
LM-
LM+
OPEN
CLOSE
GND
SW
GND
MGND
+P8V
L231 HB
C231 0.1UF
C232 0.1UF
C241 47U/16V
RVCC2
C239 0.1UF
C242 OPEN
IC202
LA6560
MGND
R231 2.2K
R232 2.2K
C233 0.1UF
R233 2.2
R234 2.2
C234 0.1UF
TROPEN
TRCLOSE
LOAD+
LOAD-
T+
T-
F-
F+
SP-
SP+
SL+
SL-
FMSO
R235 10K
R236 15K
C245 0.1UF
FWD
REV
VCC2
VLO-
VLO+
VO4+
VO4-
VO3+
VO3-
FR
VO2+
VO2-
VO1+
VO1-
VCC1
VIN1
VIN1-A
VIN1+A
VIN-B
S-GND
VCONT
MUTE
VIN4
VIN4-
VIN4+
VREF-IN
VIN1(VREF)-SW
VREF-OUT(CH1)
REG-OUT
REG-IN
VIN3+
VIN3-
VIN3
VIN2+
VIN2-
VIN2
VIN1+B
STBY
TRSO
V1P4
FOSO
DMSO
TP221
TP222
TP223
R238 10K
R241 10K
R246 10K
C243 560P
C244 560P
C240 0.015UF
R237 27K
R239 10K
R240 10K
R242 27K
R243 10K
R244 15K
R245 10K
URST
TROPEN
SCLK
SDEN
SDATA
PWMOUT2
DMSO
FOSO
TRSO
FMSO
FROM MT1379
ADIN
PROGR_L
TO MT1379

• AUDIO SCHEMATIC DIAGRAM


From MPEG
VRST#
ACLK
ABCK
ALRCK
SCL
SDA
ASTB
VSCK
VSDA
ASDAT0
ASDAT1
ASDAT2
ASDAT3
A_MUTE
AV33
VCC
L402 FB
L403 FB
C406 0.1U
C407 47U/16V
C409 100U/16V
C408 0.1U
AGND
DGND
IC401
CS4391
/RST
VL
SDATA
SCLK
LRCK
MCLK
M3
M2
M1
M0
A_MUTEC
AOUT_A-
AOUT_A+
VA
AGND
AOUT_B+
AOUT_B-
B_MUTEC
CMOUT
FILT+
R401 1K
R402 0
R403 0
R404 0
R405 0
C402 0.1uF
C403 1uF
C404 1uF
C411 22U/16V
C413 22U/16V
C410 22U/16V
C412 22U/16V
R409 7.5K
R410 7.5K
R411 7.5K
R412 7.5K
R415 8.2K
R414 1.8K
R413 1.8K
R417 8.2K
R418 8.2K
R416 1.8K
R421 1.8K
R479 8.2K
C417 1000P
C414 270P
C415 270P
C416 270P
C472 1000P
C470 270P
C477 0.1U
C418 100U/16V
C478 0.1U
C471 100U/16V
-8V
+8V
IC402
NJM4560
C473 3900P
C474 3900P
KTC3875S
Q402
R490 1K
2SA1037K
Q401
D401
DAP202K
5VA
R489 1K
R488 1K
Q403
KTC3875S
Q404
KRA103S
KRA103S
Q405
R491 1K
R492 1K
DVD_AUDIO_L
DVD_AUDIO_R
L404 FB
C468 0.1U
C469 220U/6.3V
5V
+8V
-8V
AV33
AGND
DGND
IC451
PCM1602
C419 10U/16V
C420 470U/6.3V
C421 0.1U
C422 OPEN
R422 1K
R423 10
C423 0.1U
C424 10U/16V
C425 0.1U
R424 0
R425 0
R426 0
R427 0
R428 0
R429 0
AGND2
VCC2
AGND1
VCC1
MDO
MDI
MC
ML
VOUT3
VOUT4
VOUT5
VOUT6
ZERO6
ZERO5
ZERO4
ZERO3
ZERO2
ZERO1
/RST
SCKI
SCKO
BCK
LRCK
TEST
VDD
DGND
DATA1
DATA2
DATA3
ZEROA
VCOM
VOUT1
VOUT2
C446 47U/16V
C445 47U/16V
C442 47U/16V
C443 47U/16V
C464 47U/16V
C447 47U/16V
R433 1.8K
R478 1.8K
R432 1.8K
R477 1.8K
R434 1.8K
R476 1.8K
R484 10K
R483 10K
R431 10K
R430 10K
R486 10K
R485 10K
IC452
IC453
IC454
NJM4560
R481 10
R480 10
R482 10
C428 100U/16V
C429 100U/16V
C427 100U/16V
C475 0.1U
C426 0.1U
C476 0.1U
R469 10
R467 10
R468 10
C448 0.1U
C450 0.1U
C449 0.1U
C453 100U/16V
C451 100U/16V
C452 100U/16V
R439 100
R471 100
R440 100
R472 100
R438 100
R470 100
R442 220
R458 220
R441 220
R460 220
R443 220
R459 220
C433 3900P
C434 3900P
C436 3900P
C435 3900P
C438 3900P
C437 3900P
R452 100K
R451 100K
R453 100K
R454 100K
R456 100K
R457 100K
FL
FR
RL
RR
CENTER
WOOFER

• INTERFACE SCHEMATIC DIAGRAM

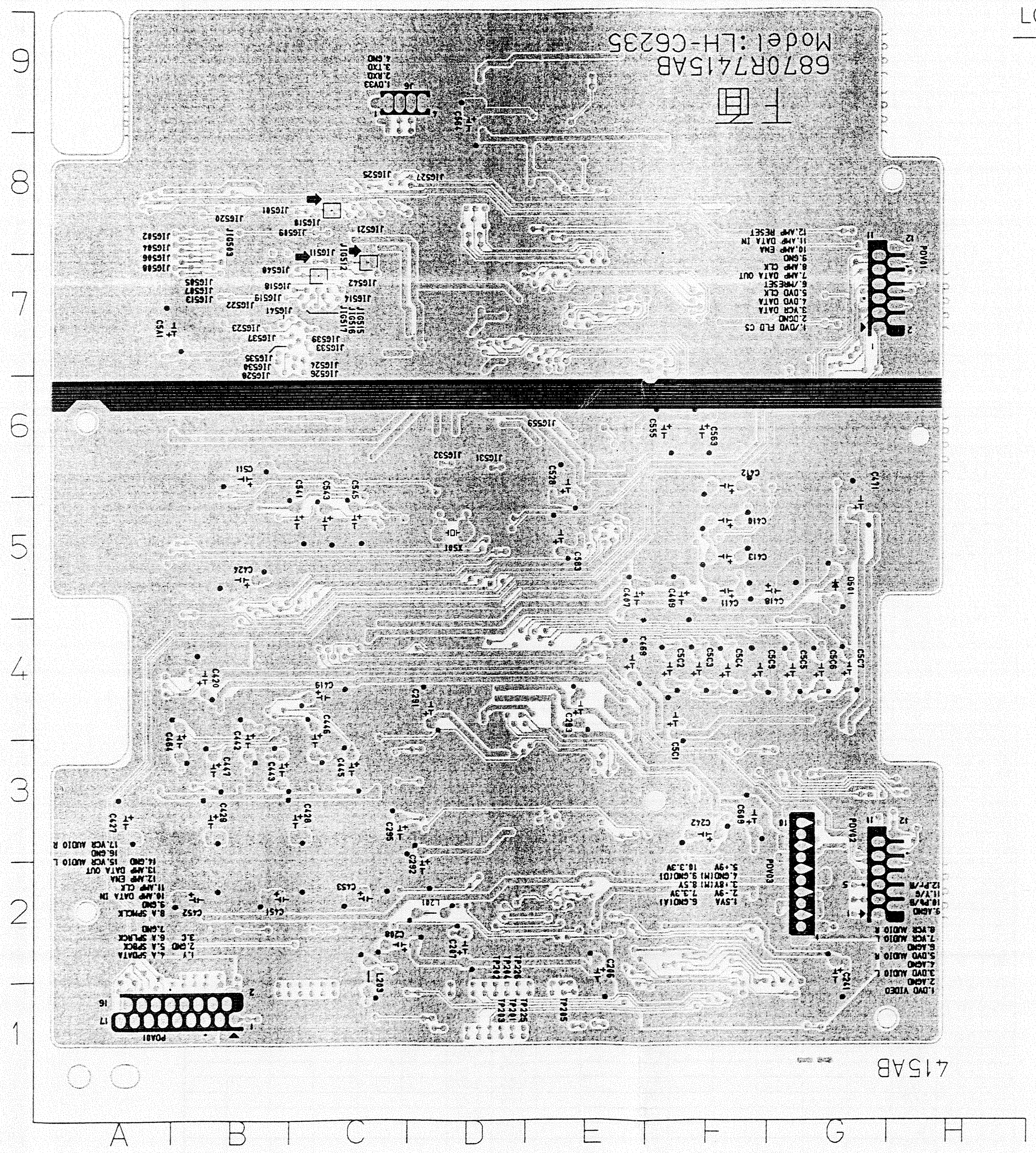

5V
C601 0.1U
C602 0.1U
C603 0.1U
AGND
5VA
-8V
+P8V
MGND
+8V
5V
3.3V
DV33
AV33
L601 FB
C610 0.1U
C609 220U/6.3V
C608 0.1U
C607 0.1U
C605 0.1U
C604 0.1U
AGND
DGND
PDV03
1 5VA
2 -9V
3 +8V(M)
4 GND(M)
5 +9V
6 GND(A)
7 3.3V
8 5V
9 GND(D)
10 3.3V
Y
R605 0
Cout
R606 0
A_SPDATA
R607 0
A_SPBCK
R608 0
A_SPLRCK
R609 0
A_SPMCLK
R610 0
C615 NC
C616 NC
C617 NC
C618 NC
PDA01
1 Y
2 GND
3 C
4 A_SPDATA
5 A_SPBCK
6 A_SPLRCK
7 GND
8 A_SPMCLK
9 GND
10 AMP_DATA_IN
11 AMP_CLK
12 AMP_ENA
13 AMP_DATA_OUT
14 GND
15 VCR_AUDIO_L
16 GND
17 VCR_AUDIO_R
PDA02
1 GND
2 FL
3 GND
4 FR
5 GND
6 CENTER
7 GND
8 RL
9 GND
10 RR
11 GND
12 WOOFER
FL
FR
CENTER
RL
RR
WOOFER
/DVD_FLD_CS
R601 0
VCR_DATA
R603 0
DVD_DATA
R602 0
DVD_CLK
/M_RESET
R604 0
C611 NC
C612 NC
C613 NC
C614 NC
PDV01
1 /DVD_FLD_CS
2 DGND
3 VCR_DATA
4 DVD_DATA
5 DVD_CLK
6 /MRESET
7 AMP_DTA_OUT
8 AMP_CLK
9 GND
10 AMP_ENA
11 AMP_DATA_IN
12 AMP_RESET
DVDV.OUT
R611 0
DVD_AUDIO_L
DVD_AUDIO_R
PDV02
1 DVD_VIDEO
2 AGND
3 DVD_AUDIO_L
4 AGND
5 DVD_AUDIO_R
6 AGND
7 VCR_AUDIO_L
8 VCR_AUDIO_R
9 AGND
10 Pb/B
11 Y/G
12 Pr/R
Pb_B
R612 0
Y_G
R613 0
Pr_R
R614 0
DGND
AGND
Cout
DVDV.OUT
Y
Y_G
Pb_B
Pr_R
DVD_CLK
/M_RESET
/DVD_FLD_CS
DVD_DATA
VCR_DATA
DVD_AUDIO_L
DVD_AUDIO_R
FL
FR
WOOFER
RL
RR
CENTER
AGND
DGND
DGND
AGND
A_SPDATA
A_SPMCLK
A_SPLRCK
A_SPBCK

VOLTAGE SHEET (IC&TR)

	IC201(MT1336E)		IC202(MOTOR)		IC401(CS4391)		IC402(AMP)		IC5C1(MM1623XFBE)		IC501(MT1379)		IC502(SDRAM)		IC505(EEPROM)		IC510(BUFFER)	
PIN	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
1	1.03	2.99	0	0	3.28	3.29	5.52	5.49	5.09	5.08	1.22	1.22	3.27	3.28	0	0	0	0
2	5.11	5.08	0	0	3.28	3.28	5.52	5.48	2.43	2.42	0	0	1.18	1.26	0	0	2.59	2.55
3	0	0	8.04	8.01	0	1.65	5.51	5.47	5.09	5.08	0.96	0.9	1.1	1.52	0	0	0	0
4	0	0	0.12	0.06	1.63	1.64	0	0	1.45	0	2	2.06	0	0	0	0	2.59	2.56
5	5.11	5.07	0	0.06	1.64	1.65	5.51	5.48	0	0	0	1.51	0.66	1.07	3.28	3.29	0	0
6	0	1.95	3.64	3.69	1.59	1.61	5.51	5.48	1.45	1.69	1.48	1.47	0.85	1.12	3.28	3.29	3.24	3.23
7	0	0	3.62	3.61	0	0	5.52	5.47	0	0	0	1.56	3.27	3.28	0	0	0	0
8	0	0	3.64	3.53	3.28	0	12.03	12.03	2.47	2.46	3.2	1.52	0.51	0.97	3.28	3.29	0.14	0.08
9	5.11	0	3.6	3.76	3.28	3.29			0	0	0.12	0.06	3.06	0			0	0
10	5.11	5.08	3.62	2.43	0	0			1.14	1.76	0.12	0.06	0	0			0	0
11	5.11	5.08	3.63	4.85	5.01	5.01			0	0	3.25	3.25	0.06	0.98			0.15	0.09
12	0	0	3.62	3.72	2.31	2.31			2.42	2.42	1.41	1.49	3.18	0.87			0	0
13	5.11	0	3.64	3.57	4.96	0			5.09	5.08	1.41	1.41	3.27	3.28			0.15	0.08
14	5.11	5.08	8.04	8.01	1.42	2.41			2.43	2.42	0	0	2.94	2.56			5.19	5.19
15	2.84	2.81	1.45	1.48	2.4	2.39			0	0	1.42	1.42	0.47	0.42			0.14	0.09
16	1.45	1.43	0.27	1.39	0	0			2.49	2.47	3.3	0	2.93	3.01			5.25	5.24
17	2.08	2.07	0.29	1.32	5.11	5.09			0	0	2.53	2.53	3.21	3.22			0.15	0.08
18	1.37	1.42	1.45	1.43	2.41	2.41			2.48	2.47	1.42	2.27	2.87	2.95			5.23	5.23
19	0.69	2.3	1.45	1.43	2.43	2.43			0	0	1.42	1.39	0.15	1.32			0	0
20	2.4	0	1.45	0.82	0	0			1.18	2.3	0	0	0	0.05			5.25	5.25
21	2.35	0	1.45	1.43					1.76	2.17	2.61	2.58	3.09	1.32				
22	5.11	5.08	1.45	1.43					0	0	0.75	1.46	3.09	1.32				
23	0	0	1.47	1.37					1.76	2.24	2.83	1	3.09	1.32				
24	2.59	3.2	1.45	1.43					0	0	1.9	0.89	3.09	1.33				
25	0.19	1.88	1.45	1.43					0	0	1.72	0.39	3.27	3.29				
26	1.58	0	0.95	0.91					0	0	0.68	0.31	0	0				
27	2.56	3.13	0	0					0.06	0.05	2.84	3.16	0.15	1.36				
28	2	2.01	1.45	1.43					5.09	0	0	0	1.84	2.36				
29	2	2.06	5.15	5.11							2.85	0.66	1	2.32				
30	2.96	1.52	1.45	1.43							1.83	0.49	0.54	1.75				
31	0	0	1.45	1.43							0.91	1.39	0.06	0.06				
32	0.06	2.07	1.45	1.43							1.43	1.2	0.05	0.06				
33	0.07	2.07	1.46	1.45							1.51	1.57	0	0				
34	0	0	5.08	5.06							1.51	1.43	0.73	1.26				
35	0	0	5.15	5.11							3.3	3.29	1.48	1.55				
36	0	0	0	0							0.81	1.26	2.91	2.53				
37	5.13	0									1.45	1.02	0.07	0				
38	0	0									1.82	1.6	3.27	3.28				
39	0	0									1.2	1.5	1.06	1.05				
40	0	0									2	2.06	0.47	0.98				
41	0	0									2.17	1.95	0	0				
42	5.12	5.09									2.53	2.52	0	0.6				
43	5.12	5.09									1.96	1.9	1.12	1.24				
44	5.12	5.09									1.79	1.9	3.27	3.28				
45	5.12	5.09									0.8	1.72	1.21	0.99				
46	5.12	5.09									0.8	1.96	1.31	1.34				
47	0	0									0.8	1.84	0	0				
48	5.12	5.09									3.3	2.63	1.43	1.44				
49	5.12	0									0	0.13	0.88	1.01				
50	5.08	5.06									0	0.07	0	0				
51	5.09	5.07									0	0						
52	5.1	0									0	0						
53	0	0									0	0						
54	5.13	0									0	0						
55	0.09	0.2									3.25	3.27						
56	1.61	0									1.21	1.18						
57	0	0									0	0						
58	0	0									3.29	3.29						
59	0	0									0	0						
60	0	0									0	0						
61	3.28	0									2.59	2.57						
62	0	0									2.58	2.58						
63	0	0									0	0						
64	0	0									2.59	2.56						
65	0	0									3.29	3.29						
66	0.26	0									3.3	3.29						
67	5.12	5.08									3.29	3.29						
68	0	0									2.57	2.56						
69	5.12	0									5.19	5.18						
70	3.21	2.03									2.59	2.57						
71	3.46	2.2									0.12	0.08						
72	2.81	0									2.53	2.52						
73	0	0									2.59	2.57						
74	0.21	0.09									3.29	3.29						
75	0.22	0									2.61	2.61						
76	0	0.1									3.27	3.24						
77	0.21	0.09									0	0						
78	0.23	0.09									0.94	1.04						
79	0.21	0.08									0.78	1.06						
80	0.23	0.08									0.89	1.15						

PRINTED CIRCUIT DIAGRAM

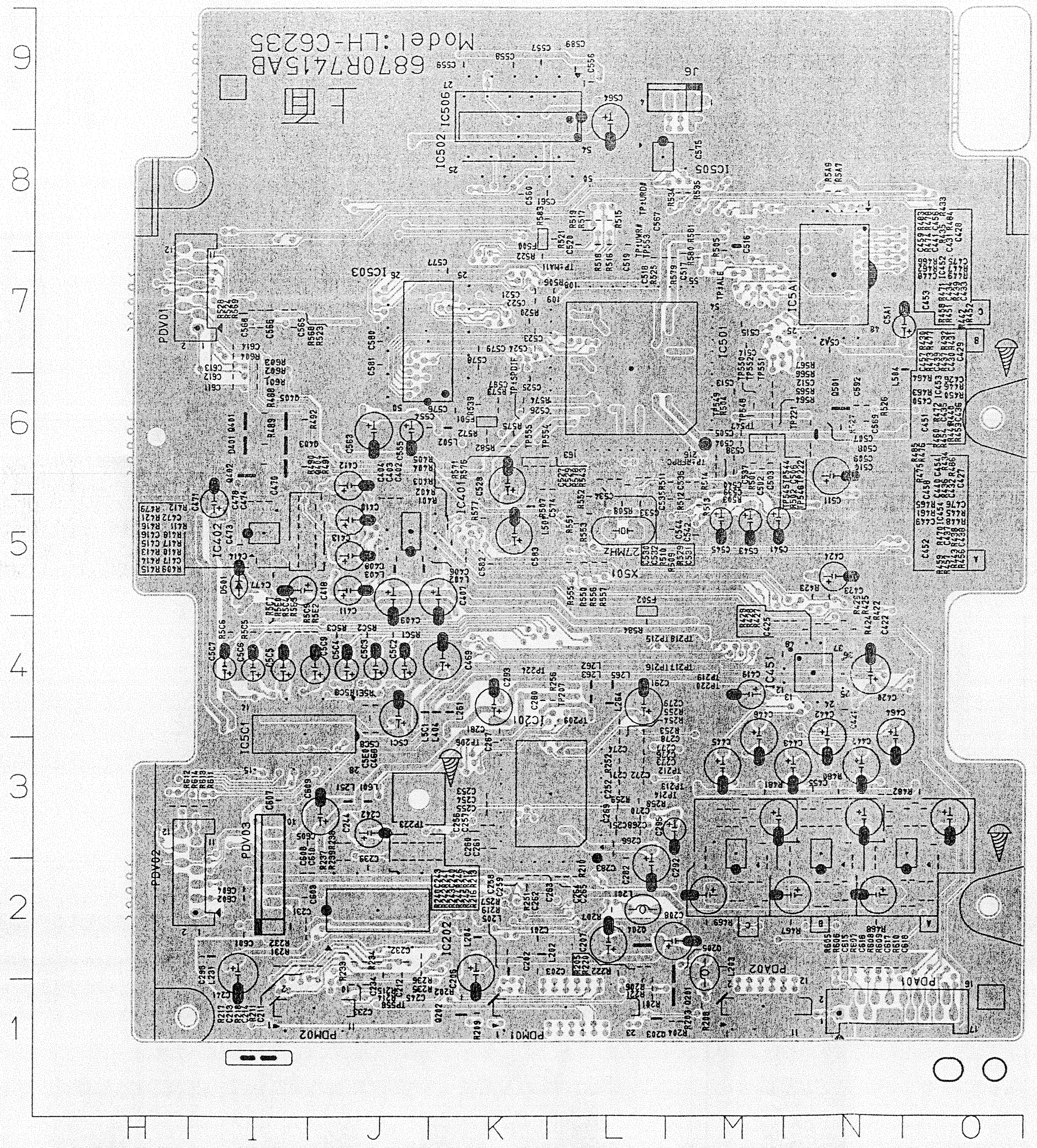
• MAIN P.C. BOARD (SOLDER SIDE)



LOCATION GUIDE

JIG501	C8
JIG502	B8
JIG503	B8
JIG504	B8
JIG505	B8
JIG506	B7
JIG507	B7
JIG508	B7
JIG509	C8
JIG510	C8
JIG511	C7
JIG512	C7
JIG513	B7
JIG514	C7
JIG515	C7
JIG516	C7
JIG517	C7
JIG518	C7
JIG519	B7
JIG520	B8
JIG521	C8
JIG522	B7
JIG523	B7
JIG524	C7
JIG525	C8
JIG526	C7
JIG527	D8
JIG528	B7
JIG530	B7
JIG531	D6
JIG532	D6
JIG533	C7
JIG535	C7
JIG537	B7
JIG539	C7
JIG540	C7
JIG541	B7
JIG542	C7
JIG559	E6
TP201	D1
TP202	D1
TP203	D1
TP204	D1
TP205	E1
TP225	D1
TP226	D1

• MAIN P.C. BOARD(COMPONENT SIDE)



LOCATION GUIDE

C201	K2	C406	J5	C475	M3	C568	I7	IC506	K9	R220	L2	R439	M2	R511	M6	R5E0	I4
C202	K2	C407	K5	C476	03	C569	N6	IC5A1	N7	R221	L1	R440	N2	R512	M5	R5E1	J4
C203	K2	C408	J5	C477	I5	C574	L6	IC5C1	I4	R222	L2	R441	N2	R513	M5	R5E2	J4
C206	K2	C409	J5	C478	I5	C575	M8	J6	M9	R231	I2	R442	M2	R514	M6	R5E3	I4
C207	L2	C410	J5	C502	M6	C576	K6	L201	L2	R232	I2	R443	02	R515	L8	R601	I6
C208	M2	C411	J5	C503	M6	C577	K7	L202	K2	R233	J2	R445	02	R516	L8	R602	I6
C211	J2	C412	J6	C504	M6	C578	K7	L203	M2	R234	J2	R446	N2	R517	L8	R603	I7
C212	J2	C413	J5	C505	M6	C579	K7	L204	K2	R235	J2	R447	M2	R518	L8	R604	I7
C213	I2	C414	I5	C506	M6	C580	J7	L205	K2	R236	J2	R448	02	R519	L8	R605	N2
C214	I2	C415	I5	C507	N6	C581	J7	L231	I2	R237	J2	R449	M2	R520	K7	R606	N2
C231	I2	C416	I5	C508	N6	C582	K5	L251	J3	R238	J3	R450	N2	R521	L8	R607	N2
C232	J2	C417	J5	C509	N6	C583	K5	L261	K4	R239	J2	R451	M2	R522	K7	R608	N2
C233	J1	C418	I5	C510	N6	C589	L9	L262	L4	R240	J2	R452	M2	R523	I7	R609	N2
C234	J1	C419	M4	C511	N6	C592	N6	L263	L4	R241	J3	R453	N2	R524	I7	R610	N2
C239	J2	C420	N4	C512	M6	C597	K6	L264	L4	R242	J2	R454	N2	R525	L7	R611	I3
C240	J3	C421	N4	C513	M6	C5A1	N7	L265	L4	R243	J2	R456	02	R526	N6	R612	H3
C241	I2	C422	N4	C514	M7	C5A2	N7	L402	J5	R244	J2	R457	02	R527	N6	R613	I3
C242	J3	C423	N5	C515	M7	C5C1	J4	L403	J5	R245	K2	R458	M2	R528	I7	R614	H3
C243	J3	C424	N5	C516	M8	C5C2	J4	L404	K4	R246	J3	R459	N2	R529	L6	TP206	K3
C244	J3	C425	N4	C517	M7	C5C3	J4	L501	K5	R251	K2	R460	N2	R534	M8	TP207	L4
C245	J2	C426	N3	C518	L7	C5C4	J4	L502	K6	R252	L3	R461	N2	R535	M8	TP209	L4
C251	L3	C427	03	C519	L8	C5C5	I4	L504	N7	R253	L4	R462	M2	R539	K6	TP212	L3
C252	L3	C428	M3	C520	L8	C5C6	I4	L5C1	J4	R254	L3	R463	N2	R543	L6	TP213	L3
C253	K3	C429	N3	C521	K7	C5C7	I4	L601	J3	R255	L4	R464	N3	R550	L5	TP214	L3
C254	K3	C430	N3	C522	K7	C5C8	J4	PDA01	N1	R256	L4	R465	N3	R551	L5	TP215	L4
C255	K3	C431	M3	C523	K7	C5C9	J4	PDA02	M1	R257	K2	R466	M3	R552	L5	TP216	L4
C256	K3	C432	03	C524	K7	C5E0	J4	PDM01	L1	R258	L3	R467	N2	R553	L5	TP217	M4
C257	K3	C433	M2	C525	K6	C601	I2	PDM02	J1	R259	L3	R468	N2	R555	L5	TP218	M4
C258	K2	C434	M2	C526	K6	C602	I2	PDV01	I7	R401	K5	R469	M2	R556	L5	TP219	M4
C259	K2	C435	N2	C527	K6	C603	I2	PDV02	I2	R402	K5	R470	N2	R557	L5	TP220	M4
C260	K3	C436	N2	C528	K6	C604	I2	PDV03	I2	R403	K5	R471	M2	R564	M6	TP221	M6
C261	K3	C437	02	C529	K6	C605	I3	Q201	M1	R404	K5	R472	N2	R565	M6	TP222	M6
C262	K2	C438	02	C530	L6	C607	I3	Q202	K1	R405	K5	R473	N3	R566	M6	TP223	J3
C263	K2	C439	N3	C531	L6	C608	I2	Q203	L1	R409	J5	R474	M3	R567	M6	TP224	K4
C264	L2	C440	03	C532	L6	C609	J3	Q204	L2	R410	J5	R475	N3	R568	I7	TP544	M6
C265	L2	C441	M3	C533	L5	C610	J2	Q205	M2	R411	J5	R476	N3	R569	I7	TP545	M6
C266	L3	C442	N3	C534	L5	C611	I6	Q401	I6	R412	J5	R477	N3	R571	K6	TP546	M6
C267	K3	C443	N3	C535	M5	C612	I6	Q402	I6	R413	I5	R478	M3	R572	K6	TP547	M6
C268	L3	C445	M3	C536	M6	C613	I7	Q403	I6	R414	I5	R479	I5	R573	K6	TP548	M6
C269	L3	C446	M3	C537	M6	C614	I7	Q404	I6	R415	I5	R480	N3	R574	K6	TP549	M6
C270	L3	C447	N3	C538	M6	C615	N2	Q405	I6	R416	I5	R481	M3	R575	K6	TP550	M6
C271	L3	C448	M2	C539	M6	C616	N2	Q501	N6	R417	J5	R482	03	R576	K6	TP551	M6
C272	L3	C449	N2	C540	M6	C617	N2	R201	L1	R418	J5	R483	M3	R577	K5	TP552	M6
C273	L3	C450	N2	C541	M5	C618	02	R202	K1	R421	I5	R484	M3	R578	K6	TP553	L8
C274	L3	C451	N2	C542	M5	D401	I6	R203	M1	R422	N4	R485	N3	R579	M7	TP554	K6
C276	L3	C452	N2	C543	M5	D501	I5	R204	M1	R423	N5	R486	03	R580	M7	TP555	K6
C277	L3	C453	M2	C544	M5	F500	K8	R205	L2	R424	N4	R488	I6	R581	M8	TP558	J1
C278	L3	C454	03	C545	M5	F501	K6	R206	L1	R425	N4	R489	I6	R582	K6	TP±ALE	M7
C279	L4	C455	N3	C554	J6	F502	L5	R207	L2	R426	N4	R490	I6	R583	K8	TP±MA11	L7
C280	K4	C456	M3	C555	J6	IC201	L3	R208	M1	R427	N4	R491	I6	R584	L4	TP±RFRPC	M6
C281	K4	C457	N3	C556	L9	IC202	J2	R209	K1	R428	M4	R492	I6	R5A7	N8	TP±SPDIF	K6
C282	L2	C458	N3	C557	K9	IC401	J5	R210	L2	R429	M4	R501	M6	R5A9	N8	TP±URD#	L8
C283	L3	C459	M3	C558	K9	IC402	I5	R211	J2	R430	N3	R502	M6	R5C1	J4	TP±UWR#	L8
C291	L4	C464	N3	C559	K9	IC451	N4	R212	K3	R431	N3	R503	M6	R5C2	J4	X501	L5
C292	L2	C468	J4	C560	K8	IC452	M3	R213	K3	R432	N3	R504	M6	R5C3	J4		
C293	K4	C469	K4	C561	K8	IC453	N3	R214	J2	R433	M3	R505	M7	R5C4	I4		
C295	M3	C470	I5	C563	J6	IC454	03	R215	J2	R434	03	R506	L7	R5C5	I4		
C296	I2	C471	I5	C564	L9	IC501	L7	R216	K2	R435	M3	R507	K6	R5C6	I4		
C402	J5	C472	J5	C565	I7	IC502	K8	R217	I2	R436	03	R508	L5	R5C7	I4		
C403	J5	C473	I5	C566	I7	IC503	J7	R218	I2	R437	N3	R509	L6	R5C8	J4		
C404	J5	C474	I5	C567	L8	IC505	L8	R219	K2	R438	02	R510	L6	R5C9	I4		

SECTION 6 MECHANISM OF DVD PART

CONTENTS

DECK MECHANISM PARTS LOCATIONS

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     - 1-1-1. Plate Clamp...........................6-2
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9. Guide Up/Down.................................6-4
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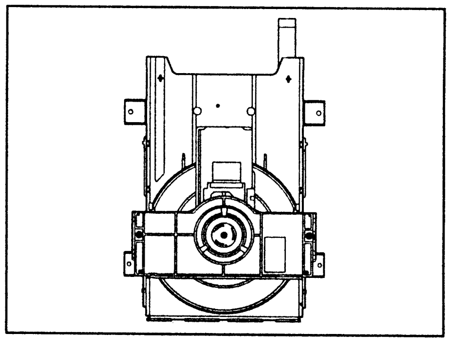
11. Base Main....................................6-4

EXPLODED VIEW

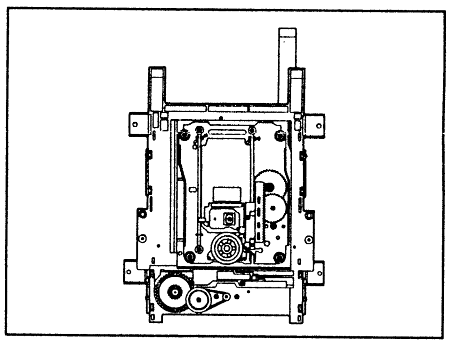
1. Deck Mechanism Exploded View....6-5

DECK MECHANISM PARTS LOCATION

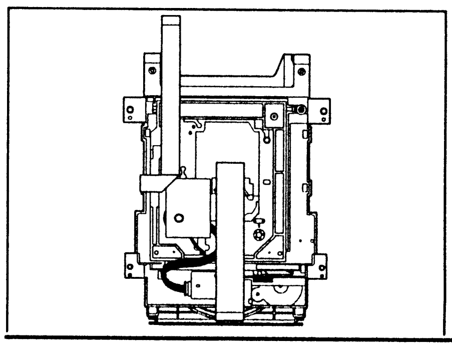
- **Top View (With Tray)**



- **Top View (Without Tray)**



- **Bottom View**



Procedure Starting No.		Parts	Fixing Type	Disassembly	Figure
	1	Holder Clamp	2 Screws, 2 Locking Tabs		6-1
1	2	Clamp Assembly Disc			6-1
1, 2	3	Plate Clamp			6-1
1, 2, 3	4	Magnet Clamp			6-1
1, 2, 3, 4	5	Clamp Upper			6-1
1	6	Tray Disc			6-2
1, 6	7	Base Assembly Sled	4 Screws,		6-3
1, 2, 6	8	Gear Assembly Feed			6-3
1, 2, 6, 8	9	Gear Middle			6-3
1, 2, 6, 8, 9	10	Gear Assembly Rack	1 Screw		6-3
1, 2, 7	11	Rubber Rear			6-3
1, 2, 7	12	Frame Assembly Up/Down	1 Screw	Bottom	6-4
1, 2	13	Belt Loading	1 Locking Tab		6-4
1, 2 ,13	14	Gear Pulley			6-4
1, 2, 13, 14	15	Gear Loading	1 Locking Tab		6-4
1, 2, 7, 12, 13, 14	16	Guide Up/Down			6-4
1, 2, 13	17	PWB Assembly Loading	1 Locking Tab 1 Hook 2Screw	Bottom	6-4
1, 2, 7, 12, 13, 14, 15, 16, 17	18	Base Main			6-4

Note

When reassembling, perform the procedure in reverse order.

The "Bottom" on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

DECK MECHANISM DISASSEMBLY

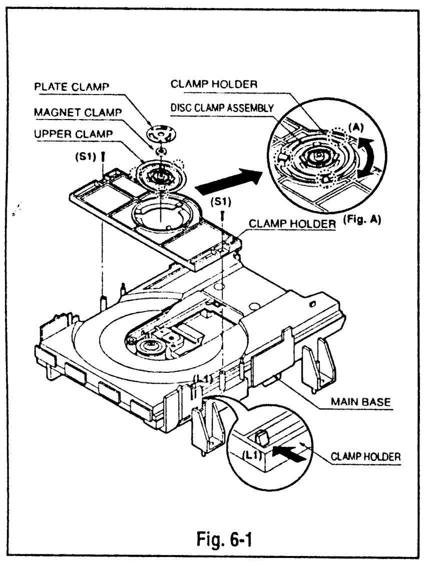
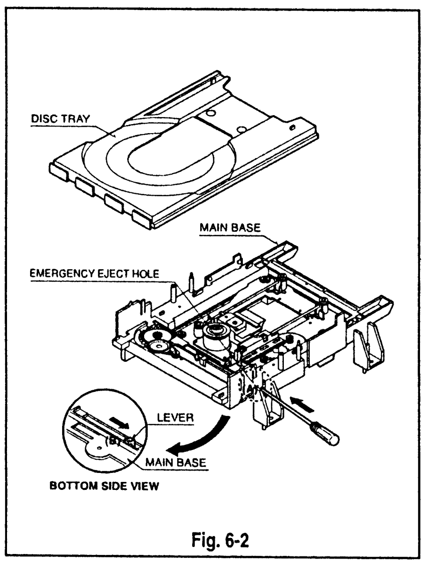


PLATE CLAMP
CLAMP HOLDER
MAGNET CLAMP
DISC CLAMP ASSEMBLY
UPPER CLAMP
(S1)
(A)
(S1)
CLAMP HOLDER
(Fig. A)
(L1)
MAIN BASE
(L1)
CLAMP HOLDER

Fig. 6-1



DISC TRAY
MAIN BASE
EMERGENCY EJECT HOLE
(A)
LEVER
(B)
MAIN BASE
BOTTOM SIDE VIEW

Fig. 6-2

1. Holder Clamp (Fig. 6-1)

1) Release 2 Screws(S1).
2) Unhook 2 Locking Tabs(L1).
3) Lift up the Holder Clamp and then separate it from the Base Main.

1-1. Clamp Assembly Disc

1) Place the Clamp Assembly Disc as Fig. (A)
2) Lift up the Clamp Assembly Disc in direction of arrow(A).
3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

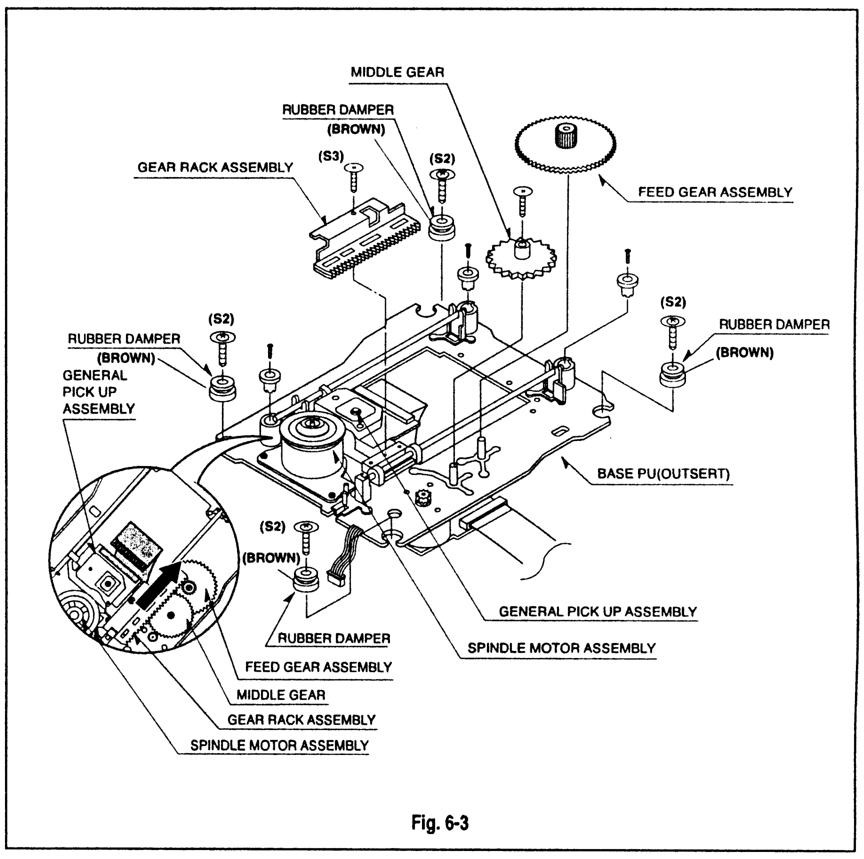
1-1-2. Magnet Clamp

1-1-3. Clamp Upper

2. Tray Disc (Fig. 6-2)

1) Insert and push a Driver in the emergency eject hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ejected about 15~20mm.
2) Pull the Tray Disc until it is separated from the Base Main completely.

DECK MECHANISM DISASSEMBLY



MIDDLE GEAR
RUBBER DAMPER
(BROWN)
GEAR RACK ASSEMBLY
(S3)
(S2)
FEED GEAR ASSEMBLY
(S2)
(S2)
RUBBER DAMPER
(BROWN)
RUBBER DAMPER
(BROWN)
GENERAL PICK UP ASSEMBLY
BASE PU(OUTSERT)
(S2)
(BROWN)
GENERAL PICK UP ASSEMBLY
RUBBER DAMPER
SPINDLE MOTOR ASSEMBLY
FEED GEAR ASSEMBLY
MIDDLE GEAR
GEAR RACK ASSEMBLY
SPINDLE MOTOR ASSEMBLY

Fig. 6-3

3. Base Assembly Sled (Fig. 6-3)

1) Release 4 Screw(S2).
2) Disconnect the FFC Connector(C1)

3-1. Gear Assembly Feed

3-2. Gear Middle

3-3. Gear Assembly Rack

1) Release the Scerw(S3)

4. Rubber Rear (Fig. 6-3)

DECK MECHANISM DISASSEMBLY

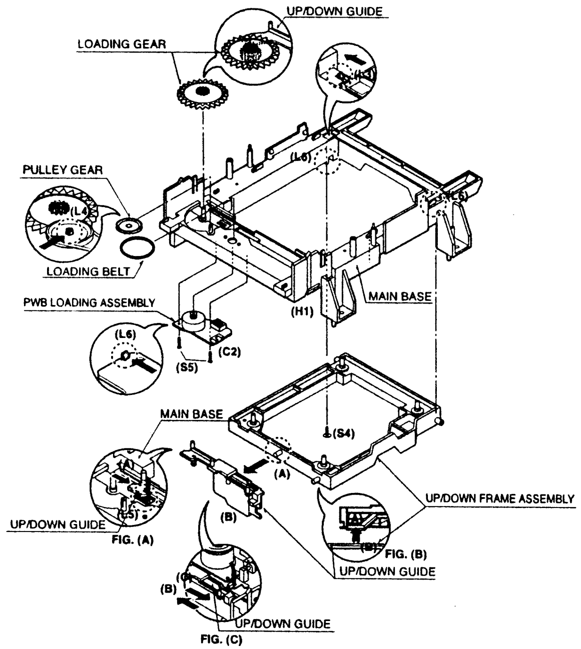

UP/DOWN GUIDE
LOADING GEAR
(L3)
(L6)
PULLEY GEAR
(L4)
(L5)
LOADING BELT
PWB LOADING ASSEMBLY
MAIN BASE
(H1)
(L6)
(C2)
(S5)
MAIN BASE
(S4)
(A)
UP/DOWN FRAME ASSEMBLY
(A)
(L5)
UP/DOWN GUIDE
FIG. (A)
(B)
(B)
FIG. (B)
UP/DOWN GUIDE
(C)
(B)
UP/DOWN GUIDE
FIG. (C)

Fig. 6-4

5. Frame Assembly Up/Down (Fig. 6-4)

Note

Put the Base Main face down(Bottom Side)

1) Release the Screw(S4)
2) Unlock the Locking Tab(L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

Note

- When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig.(C).
- When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B)

6. Belt Loading(Fig. 6-4)

Note

Put the Base Main on original position(Top Side)

7. Gear pulley (Fig. 6-4)

1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main.

8. Gear Loading (Fig. 6-4)

9. Guide Up/Down (Fig. 6-4)

1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A)
2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

Note

When reassembling place the Guide Up/Down as Fig.(C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig.(A)

10. PWB Assembly Loading (Fig. 6-4)

Note

Put the Base Main face down(Bottom Side)

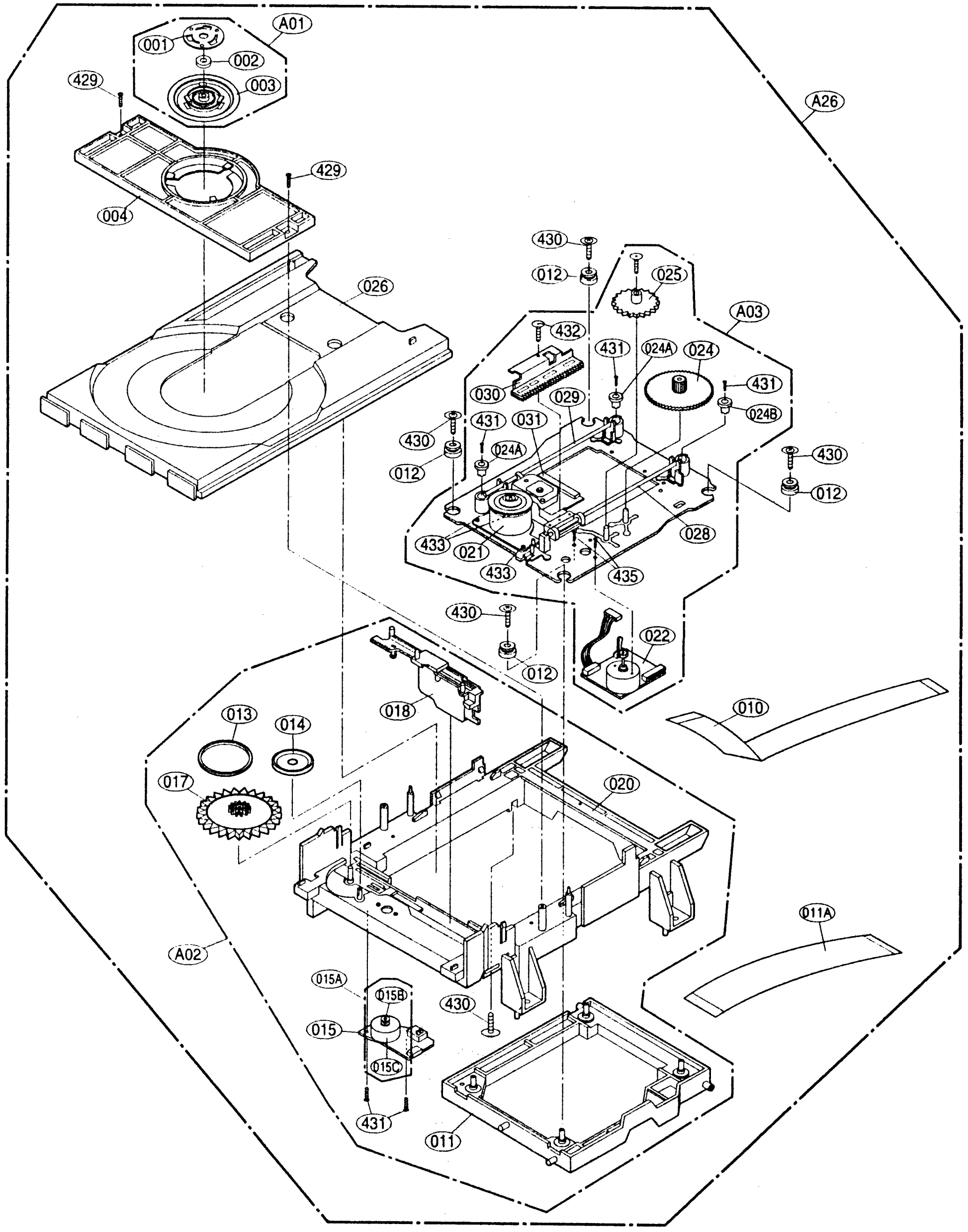
1) Release 2 Screws(S5)
2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.
3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

11. Base Main(Fig. 6-4)

MEMO

EXPLODED VIEWS

1. Deck Mechanism Exploded View


A01
001
002
003
429
429
004
026
A26
430
012
025
A03
432
431
024A
024
431
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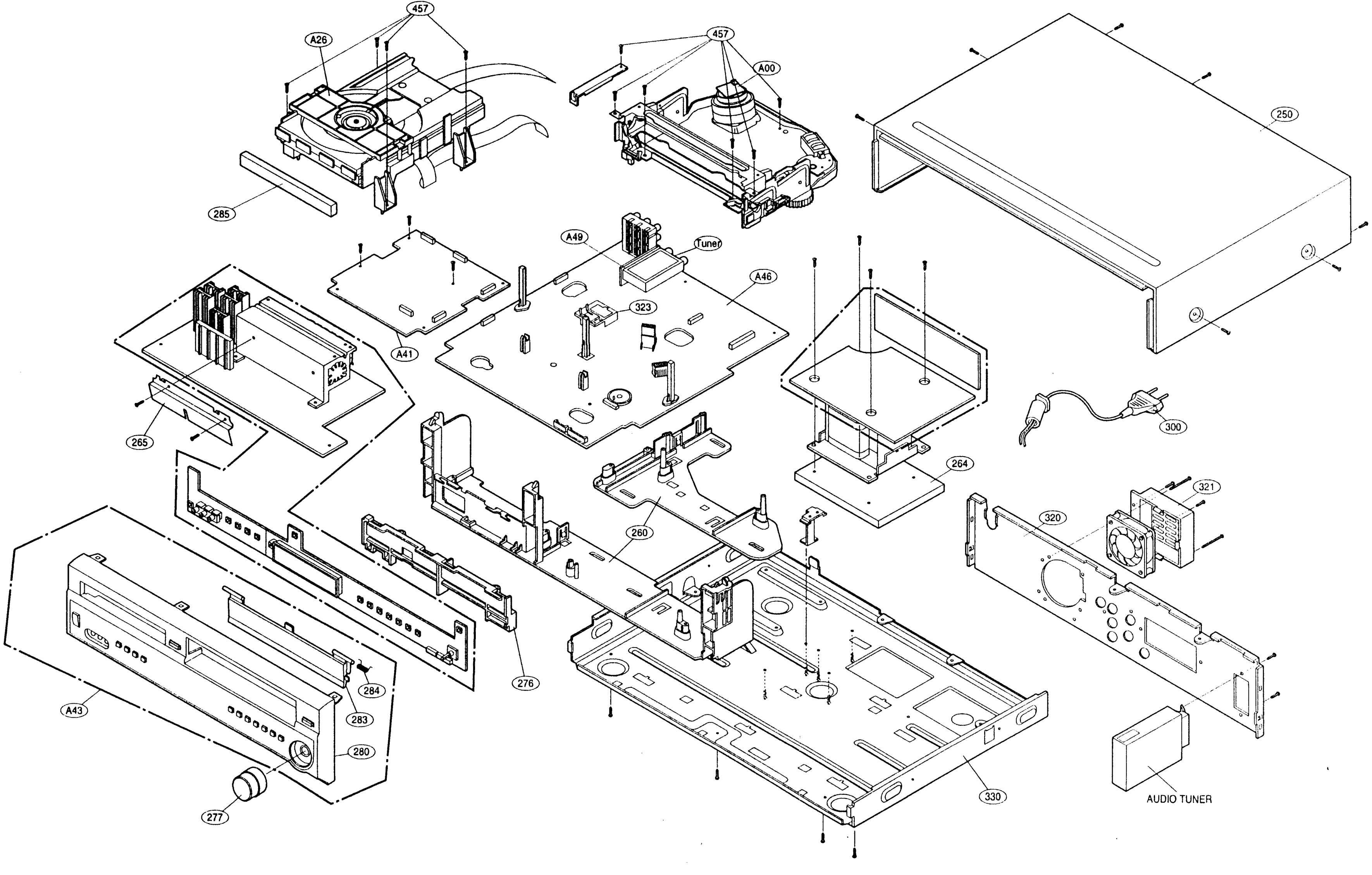
029
024B
430
431
031
012
024A
430
012
028
433
021
433
435
430
022
012
018
010
013
014
017
020
011A
A02
015A
015B
430
015
015C
431
011

SECTION 7. EXPLODED VIEWS

• CABINET AND MAIN FRAME

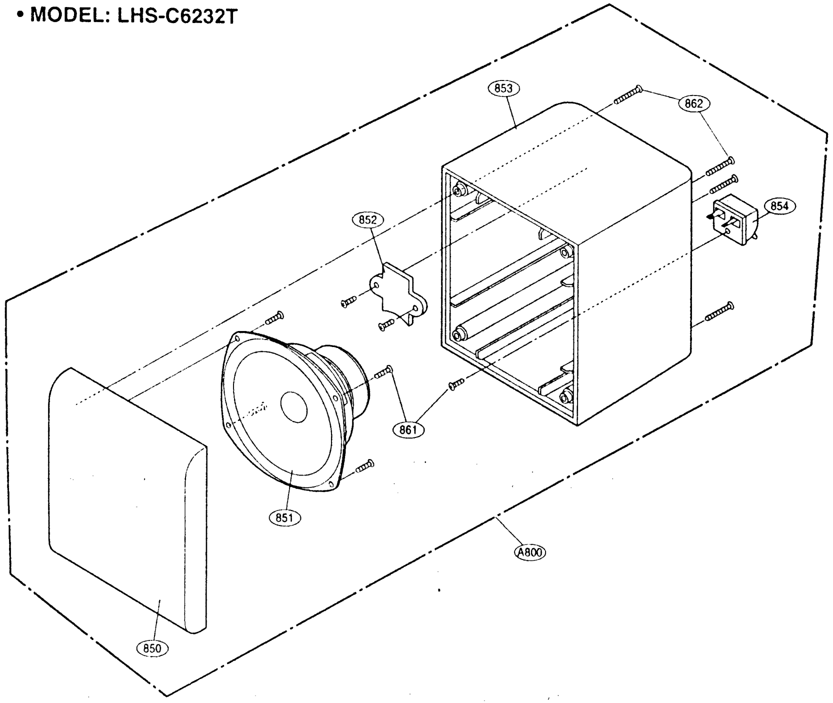
NOTE) Refer to "SECTION 7 REPLACEMENT PARTS LIST" in order to look for the part number of each part.


457
A26
457
A00
250
285
A49
Tuner
A46
A41
323
265
300
264
321
320
260
276
284
283
280
A43
277
330
AUDIO TUNER

SPEAKER

■ Satellite speaker

• MODEL: LHS-C6232T

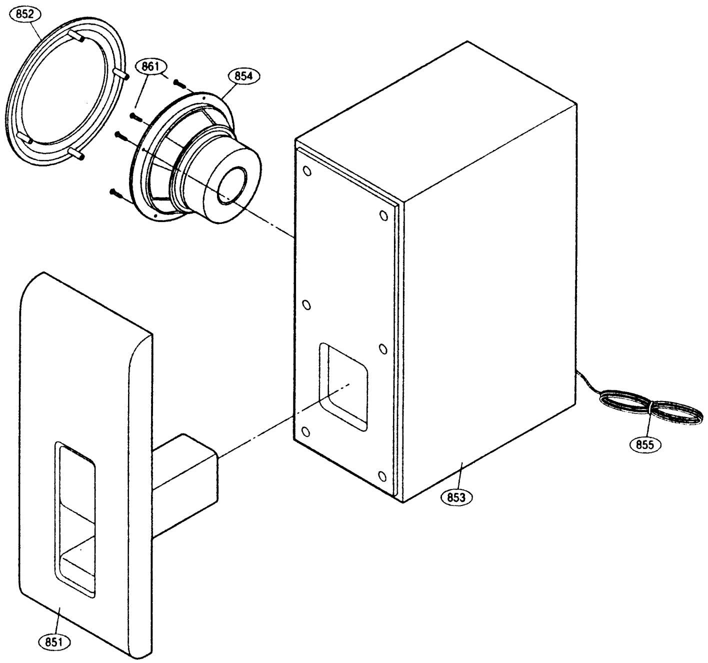


RUN DATE : 05.JUNE.2003

LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
850	3701RM0042A	NET ASSEMBLY	SPK LHS-D6230T L.SILVER	
851	6400FTTC02A	SPEAKER,FULLRANGE	F30C-D366 TOPTONE FULL-RANGE(H	
853	3110RMP009A	CASE	REAR LH-6230TE MOLD STANDARD	
854	6871RU4116B	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	FE-3620TE 2P NEW TERMINAL 150M	
855	6871RU9271A	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230T FRONT WIRE(5M) R CH	
856	6871RU9271B	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230T FRONT WIRE(5M)/ L C	
857	6871RU9271C	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230T CENTER WIRE(5M)/ (G	
858	6871RU9271D	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230T REAR WIRE(10M) R/CH	
859	6871RU9271E	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230T REAR WIRE(10M)/ L/C	
861	353M025V	SCREW,DRAWING	+ 2 D3.0 L6.0 MSWR3/FZB	
862	353M025W	SCREW,DRAWING	+ 2 D3.0 L14.0 MSWR3/FZB	
A800	6401RM0045A	SPEAKER ASSEMBLY	F30C-D384-2 SHIN POONG LHS-D62	

■ Passive(Sub) Woofer

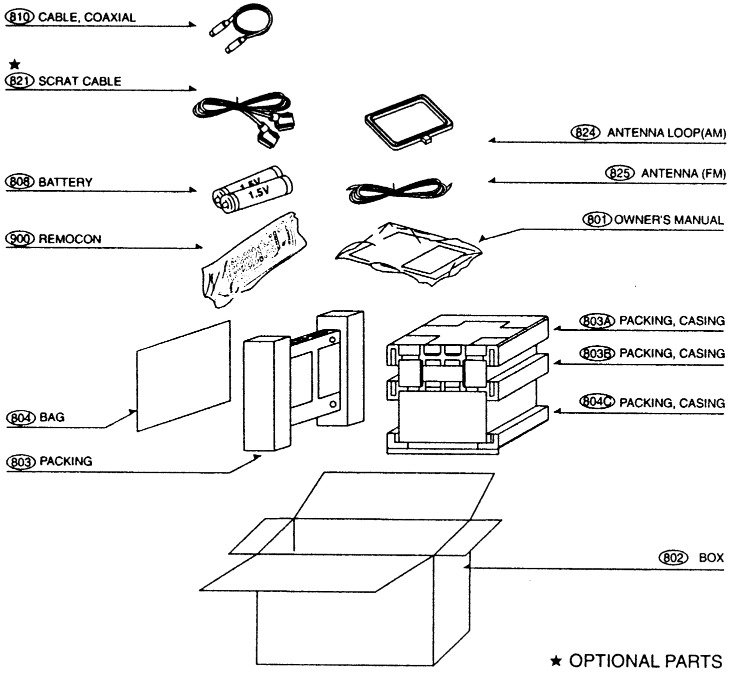
• MODEL: LHS-C6232W



RUN DATE : 05.JUNE.2003

LOCA.NO	PART NO	DESCRIPTION	SPECIFICATION	REMARKS
851	3720RMF045A	PANEL,FRONT	FRONT LH-6230WE STANDARD	
852	3701RM0043A	NET ASSEMBLY	SPK LHS-D6230W SILVER STANDARD	
853	3091RMW050A	CABINET ASSEMBLY	ASSY LH-6230WE ALL PB 9T	
854	6400WTTJ03A	SPEAKER,WOOFER	F65C-D365 TOPTONE WOOFER LHS-6	
855	6871RU9271F	PWB(PCB) ASSEMBLY,SUBSET(AUDIO	LHS-D6230W SUB WOOFER 2.5M, OR	
861	353M050C	SCREW	BH 3.5X16 FBK	

Packing Accessory Section


810 CABLE, COAXIAL
★
821 SCRAT CABLE
824 ANTENNA LOOP(AM)
808 BATTERY
1.5V
1.5V
825 ANTENNA (FM)
801 OWNER'S MANUAL
900 REMOCON
803A PACKING, CASING
803B PACKING, CASING
804C PACKING, CASING
804 BAG
803 PACKING
802 BOX
★ OPTIONAL PARTS

MEMO